

# IMAGES OF WAR

# Armoured Warfare in the

# Arab-Israeli Conflicts

RARE PHOTOGRAPHS FROM WARTIME ARCHIVES



ANTHONY TUCKER-JONES



The business end of an Israeli Centurion – it remained a firm favourite with the Israeli armoured corps because of its reliability and ability to remain operational even after sustaining considerable battle damage.

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WARFARE**

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# Contents

## Introduction

## Photograph Sources

Chapter One

### **Chariots of God – IDF Armour**

Chapter Two

### **Moscow and the Arab Armies**

Chapter Three

### **1948 – The Creation of Israel**

Chapter Four

### **1956 – The Conquest of Sinai**

Chapter Five

### **1967 – The Six Day War: The Sinai**

Chapter Six

### **1967 – The Six Day War: The West Bank**

Chapter Seven

### **1967 – The Six Day War: The Golan Heights**

Chapter Eight

### **1973 – Yom Kippur War: The Sinai**

Chapter Nine

### **1973 – Yom Kippur War: The Golan Heights**

Chapter Ten

### **1982 – The Invasion of Lebanon**

Chapter Eleven

## **The Forever War – Gaza**

# Introduction

In 1973 the Egyptian Army stormed across the Suez Canal into Israeli-held Sinai. Its tanks, covered by a protective barrage of sophisticated anti-aircraft and antitank missiles, charged through the Israelis' weak defences and deep into the desert. At the same time the Syrian Army attacked across the Golan Heights and for a moment it looked as if Israel might be overwhelmed. Instead, a handful of Israeli tanks held the Syrians' armour at bay until reinforcements could arrive and the Syrian attack was killed in its tracks.

For a moment the world held its breath for fear that the superpowers, the United States of America and the Soviet Union, would go to war over their respective Middle Eastern allies. Instead, the Americans poured thousands of tons of ammunition into Israel just as the Israeli Defence Forces were at the point of running out; similarly the Russians sent 1,200 replacement tanks to the Arabs, which helped stave off complete collapse in the closing days of the war. Such generosity was only possible because of the vast strategic reserves they had both amassed during the Cold War in preparation for the potential Third World War.

Once the tide had turned on the Golan Heights, the Israelis turned their attention back to the Egyptians. An Israeli counter-attack caught an Egyptian armoured attack almost head on; the Egyptians crumbled and Israeli tanks not only sped back to the Suez Canal but also over it. The Egyptian Army trapped in Sinai suffered a humiliating defeat and was forced to surrender. While the Israeli Air Force (IAF) played no small part in this turn of events, the real heroes of the Israeli victory were the brave crews of the Israeli armoured corps.

The creation of the Israeli Defence Forces' (IDF) famed armoured corps is literally a tale of an Englishman, an Irishman and a Scotsman, who begged, stole and borrowed armoured vehicles to help defend the fledgling Jewish state of Israel. The purpose of this book is to provide a graphic account of the development of armoured forces of the IDF and the Arab armies from 1948 to present day. As well as looking at the major tank battles they were involved in, the Arab–Israeli wars were important testing grounds for a variety of equipment, including tanks, during the height of the Cold War. Both sides were guinea pigs for the feared Third World War between NATO and the Warsaw Pact that fortunately never came to pass.

At first sight it may seem a fairly tall order condensing five major Arab–Israeli wars into a single slim volume. Nevertheless, there are broad similarities in light of the same ground being fought over, continuity in the equipment deployed and a clear evolution in the shape and doctrine of the war-winning Israeli armoured corps. The key influence on armoured warfare during the Arab–Israeli conflicts was understandably the region's barren geography. In many ways the fighting in the vast wastes of the huge Egyptian Sinai desert resemble the battles fought in North Africa during the Second World War. In contrast, the tank battles on the Golan Heights to the north have more in common with the Korean War – though in the case of the Golan there were more large-scale tank-to-tank engagements.

As well as geography, technology proved a key factor in the tank battles of the Arab–Israeli wars. For example, in 1967 the British Centurion and Soviet T-54/55 in a historic moment went head to head for the very first time. While the Arabs' T-54/55s could go on soft ground, which the Israelis' Centurions could not, the latter could kill armour beyond the range of the Soviet tanks and carried more ammunition. In a stand-off fight it could win hands down.

The Egyptians in 1973 relied on weight of fire and their superiority in armour, artillery and new Soviet-supplied anti-tank guided weapons to overcome the Israelis' superior training and tactics. Likewise, on the Golan Heights, north of the Sea of Galilee, the Syrians in 1973 tried to wield an iron fist made up almost entirely of tanks. For a moment the struggle hung in the balance as the Israelis were almost swamped on two decisive fronts.

War correspondent Jeremy Bowen, in the introduction to his book *Six Days*, looking at the 1967 Arab–Israeli war, observed: 'Roads into war zones feel the same wherever you go. It is something to do with the way that tanks churn up the tarmac and verges and flatten parked cars and buildings.' Never a truer word was said of the armoured battles fought in the Middle East between the Israelis and the Arabs.

After the Second World War only the presence of the British Army in Palestine kept Egypt, Transjordan, Iraq, Syria and Lebanon in check. While the Arab armies held back from invading, there was fighting over the control of strongpoints and key roads, from which the British often stood back. It was after the British withdrawal that phase two of the fighting started, when Israel was subjected to attack by five Arab regular armies operating on four fronts. A solitary Israeli tank battalion was created during the first ceasefire, comprising just two tank companies, one armed with ten elderly French H-35s and the other with just two British Cromwells and one American Sherman. All were veterans of the Second World War.

It was after the First World War that Palestine, formerly part of the Turkish Ottoman Empire, became a British Mandate. There were political disturbances in Palestine during the 1920s that led Britain to split off an area east of the river Jordan, creating Transjordan. Trouble continued and between 1936 and 1939 a major Arab rebellion broke out, which was directed more at the influx of Jews, fleeing the rise of Nazi Germany, than the British.

By the late 1930s the clandestine Jewish organisation Haganah was preparing to take over in the event of the British Army leaving. Known as Plan Avner, this envisaged an army of 50,000 as well as garrison forces of 17,000. When the Second World War broke out Haganah joined the Allied war effort against the Nazis and its sister organisation Irgun suspended its activities. In total some 32,000 Jews served in the British Army, gaining valuable experience in artillery, commando, engineering and infantry units as well as in the air force. In contrast only 6,000 Arabs gained military training in the British Army, while about 3,000 enlisted in the British Palestinian Police.

With rising violent antagonism between the Jewish and Arab communities, as well as hostility toward Britain's continued mandate, the British Army called it a day and withdrew 80,000 men, who had been struggling to keep the peace. Not surprisingly, when

the 1948 War of Independence broke out many senior IDF commanders were British Army veterans. By this stage Haganah numbered 46,000.

The odds for the survival of the new Israeli state were not good. About 1.2 million Palestinian Arabs confronted some 600,000 Jews. The Jewish community possessed few weapons and crucially had no heavy weaponry. The Arabs had more weapons and more fighters, but their organisation was weak, particularly after the Palestinian Arab political leadership had fractured in the wake of the failed uprisings of 1936–9. By the final stage of the War of Independence the Israelis had fielded an army of 120,000 men supported by 7,000 vehicles. It was at this stage that the myth of Israeli invincibility was first born.

While elements of the Arab armies often fought with distinction and bravery against the Israelis, what they lacked was flare and initiative. Time and time again this cost them dearly. In contrast, thinking ‘outside the box’ as well as outright wilfulness amongst Israel’s armoured force commanders had a profound effect on Israeli armoured doctrine. For example, in 1956 a notable success was achieved by Ben Ari’s 7th Armoured Brigade when, instead of supporting the Israeli infantry, he arrived before the Egyptians’ main defences at the same time. Then, leaving the infantry to defeat the Egyptian strongpoints, he charged westwards with his tanks and arrived in view of the Suez Canal, way before the other thrusts. In a stroke the Egyptian defence of the Sinai was undone.

It helped that the Israeli armoured forces had a series of outstanding commanders who showed great flare. The armoured corps – first under General Ben Ari, then Bar-Lev and Elazar – sought to capitalise on Ari’s experiences. By the late 1950s any supporting role was long forgotten and the doctrine was developed where the armoured corps’ main task was to bypass enemy resistance and make for his rear, thereby unhinging any defensive efforts. In 1964 General Israel Tal took charge and he was a very firm believer in the tank as the ‘queen of the battlefield’. He argued that armour rather than speed ensured the survival of your forces under enemy fire and ensured their ability to break through enemy defences.

At the end of the Six Day War in 1967 the Israeli armoured corps was feted as heroes. The successful thrusts by generals Tal, Yoffe and Sharon across the Sinai confirmed in the Israelis’ minds the war-winning potency of the tank. The Yom Kippur War in 1973 subsequently confirmed that, thanks to technology, modern warfare was now characterised by combined arms and that no single arm could be decisive in isolation. This combined-arms approach was demonstrated again during Operation Peace for Galilee, the Israeli invasion of Lebanon in 1982.

What follows is the story of the role armour played in Arab–Israeli conflicts over the last sixty years, from the initial battles of 1948, through the Suez Crisis, the Six Day War, the Yom Kippur War, the Israeli invasion of Lebanon and the Israeli attack on Hamas in Gaza. It is a salutary lesson that Israel’s tanks remain undefeated.

# Photograph Sources

All the photos in this book have come from the Israeli Defence Force Archives, the IDF Film Unit, the Egyptian Government Information Office and the author's own photographic library. The author would also like to thank Itzhak Bar-Zait in Tel Aviv. Readers familiar with the *Images of War* series will note that while this title has the regular quota of photos, the supporting text is longer than usual. This is partly on the basis that the publishers recognise that readers appreciate more detail, not only in the photograph captions but also in the background chapter introductions. The images need to be put into context and this cannot really be done by the captions alone.

In addition the bulk of the Arab–Israeli wars were fought on two separate fronts, making them in effect 'double' wars; this was certainly the case with the 1948, 1967 and 1973 conflicts when the Israelis ended up fighting what were two essentially separate battles. To that end, to do the relevant tank engagements justice they do need some elaboration. Finally, it will probably come as no surprise that most English-language sources on the Arab–Israeli wars generally tend to focus on the Israeli feats of arms. Inevitably as a result this bias is somewhat reflected in the text but this is not a deliberate policy on the part of the author.

## Chapter One

# Chariots of the Gods – IDF Armour

**W**hat makes the Israeli Defence Forces (IDF) particularly fascinating is that few armies have gained combat experience with such a wide variety of armour. Over the years the IDF have deployed the American M4 Sherman, M48 and M60 Patton, the British Centurion, the French AMX-13 and the Soviet T-54 and T-62 – plus a plethora of modified hybrids such as the Super Sherman/Isherman, Sho't, Magach and Sabra as well as the homegrown Merkava.

The Merkava or ‘Chariot’ is a tank that evolved from Israel’s unique operational requirements and exemplifies the power of the Israeli armoured corps, which has helped Israel triumph in six major Arab–Israeli wars. However, it evolved from very humble beginnings. Indeed, in 1948, with the creation of the state of Israel and the first Arab–Israeli conflict, the Israelis had to make do with armoured trucks and a few second-hand British tanks left behind by the British Army. This was soon to change as military necessity ensured that the Israelis became the masters of invention in the face of Arab neighbours who refused to recognise Israel.

The Israelis developed the Merkava based on their long combat experience against Soviet-designed armour, especially on the Golan Heights, which is far from ideal tank country. The first prototype appeared a year after the Yom Kippur War, however it was not issued to the IDF until 1978 and first saw combat four years later in Lebanon. The performance of the Merkava was particularly impressive, particularly its agility and the protection it afforded the crew. Its two key features are that the engine is in the front and not the back – to enhance crew protection – and the turret is very small. Israel’s small population has always meant that it can afford to trade equipment but not manpower in its conflicts with its stronger neighbours.

Although the Syrian Army knocked out Merkavas during the 1982 Lebanon invasion, no crew were lost. It performed well against the then state-of-the-art T-72, of which the Syrians had 200. Moscow was not pleased that the very first T-72 had fallen into Western hands (subsequently in an intelligence operation three T-80s were purchased straight off the production line in Ukraine in the 1990s). Likewise it outperformed the Syrians’ large fleet of T-62s. It also proved to be resistant to the anti-tank weapons of the day, notably the ubiquitous RPG-7 and the AT-3 Sagger. As a result the Merkava was viewed as a major development over the IDF’s highly effective previous main battle tank, the much-upgraded, British-supplied Centurion.

Sho't ('whip' in Hebrew) is the Israeli designation for the 105mm L7-armed, British-built Centurion. The Magach 1, 2, 3 and 5 are based on the American M48, while the Magach 6 and 7 utilised the American M60, while the Sabra tank is in turn an upgrade of the Magach 7C. During the 1990s the Magachs were placed in reserve, having been succeeded by the Merkava.

The Sho't came in a number of versions, but principally consisted of the Meteor, which had the original Rolls-Royce Meteor engine and the Kal Alef, Bet, Gimel and Dalet, which were modernised Centurions with diesel engines. The Centurion was also converted into the Puma heavily armoured combat engineering vehicle. In the wake of the 1967 war the Israelis sought to upgrade their M48s to M48A3 standards, which led to the Magach 3. The most notable improvement was replacing the original 90mm gun with the British 105mm L7 and the replacement of the combustible and underpowered petrol engine with a 750hp diesel one.

Tactics and technology played a key part in repeated IDF victories. While the Arab's Soviet-supplied armour was designed for a massed armoured charge, Israeli tanks were more versatile and accurate, which gave them a much quicker kill ratio. Likewise they had better ammunition. In part this was as a result of the British and Americans drawing on their experiences in North Africa during the Second World War. This meant that their tanks were better able to cope with desert warfare than the Soviet tanks, which were produced to fight on the Steppes and the central European plain.

Soviet tanks were designed to present the minimum-sized target out in the open. For example, the T-55 has a much lower profile than the American M48 or British Centurion. The problem with this immediately becomes apparent: because of its low turret a Soviet tank gun has very limited angle of depression. Israeli tanks had a distinct advantage in that they could point their guns down ten degrees below the horizontal, while the T-54 and T-62 could only go down four degrees. This of course offered distinct advantages when fighting in sand dunes or on rocky ridges, as a Soviet-built tank would have to expose itself to engage the enemy. This meant that in many instances Soviet tanks were unable to fight from a 'hull-down' position.

T-54 gunners had to estimate the range manually, with visual adjustment dubbed 'Eyeball Mark I'. The M48s and M60s had accurate optical-prism range-finding systems that allowed zeroing in on targets within seconds, while the Centurion gunners used machine-gun tracer bullets to correct the main gun targeting. Ammunition gave the Israelis another advantage. The T-54 and T-55 had ordinary armour-piercing (AP) shot, which gave limited penetration at long range, while the Israelis had armour-piercing discarding-sabot (APDS) and high-explosive anti-tank (HEAT) ammunition, which provided kills at greater ranges. AP is a solid full-calibre shot of steel, which dissipates much of its energy before reaching the target.

The T-62's 115mm gun could match the Israeli guns but these were in short supply in 1973. They were armed with armour-piercing fin-stabilised discarding-sabot (APFSDS) ammunition. The sabot, packing around the shell, is stripped off by air resistance to reveal an arrow of metal that offers far greater penetration. HEAT by contrast uses a blast of molten copper to burn its way through to the interior of a tank.

During all the Arab-Israeli clashes armoured vehicles played a very prominent and usually decisive role. An extraordinary range of Second World War and postwar tanks, armoured cars and armoured personnel carriers (APC) were deployed by all sides; to counter the Israeli Shermans, Pattons, Centurions and AMX-13s, the Arabs fielded the

Russian T-34s, SU-100s, T-54/55s, T-62s and T-72s.

With the outbreak of war in 1948 the Egyptians were able to muster about 200 assorted British second-hand tanks, which included a few Matildas, Valentines and Shermans, as well as Humber, Marmon-Herrington and Staghound armoured cars. The Syrians and Lebanese were equipped with second-hand French light tanks. Subject to an arms embargo, the Jews managed to get a few American M3 halftracks and French light tanks – all of which were rather worn Second World War veterans.

Following Israel's remarkable victory in 1948, one of its two armoured brigades was disbanded, but 7th Armoured was reorganised and strengthened with fifty Sherman tanks, which included both the cast- and welded-hull variants. France sold the Israelis another sixty Shermans, plus 100 AMX-13 light tanks, sixty self-propelled 105mm howitzers on the AMX chassis and 150 M3 half-tracks. This brought the Israeli tank strength to around 200 vehicles and resulted in the creation of the 27th and 37th reserve armoured brigades. This set a trend that the Arab armies could not match.

By the mid-1950s the transformation of the IDF from a Second World War-era force to a more modern one had become a matter of some urgency as Egypt received vast quantities of Eastern bloc tanks, jets and other equipment. When mobilised, Israel could muster about 100,000 regular and reserve troops – of these less than half were available for deployment against Egypt, the rest had to face Jordan, Lebanon and Syria. These forces were again tested in 1956 when Israel invaded Sinai and in 1967 when Israeli launched a pre-emptive attack on the growing military might of its neighbours.

The Yom Kippur War in 1973 was a clash of armoured titans that resulted in some of the largest tank battles since the Second World War. The Arab states committed some 3,000 tanks; during the fighting the Soviet Union shipped in another 1,200 tanks to Egypt and Syria. Israel had about 1,700 tanks at the start of the war: about half were Centurions and the rest mostly M48s, but also some M60s. They also deployed about 150 Super Shermans, which they had up-gunned with a French 105mm gun, and some modified T-54/55s. The IDF should have been overwhelmed, especially as Sagger, the Soviet wire-guided suitcase missile, greatly embarrassed the Israeli tanks. Luckily for the Israelis the T-54/55 was obsolete and they had superior stand-off capabilities and tactics.

The Israeli invasion of southern Lebanon in 1982 involved 78,000 men supported by 1,240 tanks, including the brand-new indigenous Merkava Mk II and Mk III. The latest version, the Mark IV, saw action in the Gaza strip in 2009, where it proved highly versatile even in an asymmetrical warfare environment.

The Israeli armoured corps, or Heil HaShirion in Hebrew, has evolved into the 36th Armoured Division, comprising the 7th and 188th armoured brigades; the 162nd Armoured Division, consisting of the 401st Armoured Brigade; and the 366th Armoured Division, made up of the 460th Armoured Brigade (which is a training unit). The Israelis also have a number of reserve units. The most famous formation is undoubtedly the 7th Armoured Brigade, dubbed 'Sa'ar' or 'Storm', which was Israel's very first armoured force. It has served in all of Israel's wars. The Israeli Combat Engineering Corps also utilises tanks and armoured personnel carriers.



The Merkava or 'Chariot' exemplifies the ethos of the Israeli armoured corps. Initial design work began in the late 1960s, but detailed work did not commence until 1970 under the direction of General Israel Tal. The first prototype was completed four years later and went into production in 1979. The Merkava Mk I first saw action during the Israeli invasion of Lebanon in the summer of 1982, where it fought Syrian T-72s. The latest version of the Merkava is the Mk IV seen in the second shot – this first saw action in Lebanon in 2006.



An Israeli tanker takes a break next to his Merkava – the Israeli armoured corps has been involved in five major wars and this tank is a culmination of all that combat experience.



Israeli M109 155mm self-propelled howitzers – this American-built weapon was an important addition to IDF (or 'Zahal') firepower. Subsequently the M109A1 with a longer-range gun was also supplied. Israel has always suffered a shortage of artillery and regularly pressed captured Arab equipment into service.





The British-built Centurion tank was eventually much loved by the Israelis. This tank was a rarity in the evolution of British armour design in that it proved highly successful. The Centurion entered service with the IDF in 1959 but because it was more complex than the Shermans in use at the time it was initially not liked by its crews. It formed the backbone of the Israeli armoured corps in 1967 but by the early 1970s was outnumbered by the American-supplied M48s and M60s.



Israel managed to steal several British Cromwell tanks in 1948 as part of their fledgling armoured forces. Later the British Army upgraded some of their Cromwells with a 20-pounder gun to produce the Charioteer seen here; twenty-four were sold to Jordan, which deployed them with its 3rd Tank Regiment in 1954. When the Jordanians received the Centurion they subsequently sold the Charioteers to Lebanon and some fell into the hands of the Palestinian Liberation Organisation. They were then used against the Israelis in southern Lebanon in the late 1970s.



The Israelis deployed the Sherman M4A1 76mm – a Second World War veteran, which they dubbed the M1 Sherman. These saw action during the 1956 Sinai campaign with the 7th Armoured Brigade.





The Sherman served with the IDF in a number of guises that were collectively known as the 'Isherman' or 'Super Sherman', depending on the level of upgrade. These were dubbed the M1, M50 and M51, and the latter two were upgraded to take a French 75mm and 105mm gun respectively. These Super Shermans are on the Golan Heights during the 1967 Six Day War. They also saw action in 1973 and were able to successfully engage the much newer Egyptian and Syrian T-62s.



When the Israelis purchased sixty French Shermans in 1955 they also requested a further 100 up-gunned Shermans, which arrived in July 1956. These French tanks were dubbed M50 Super Shermans and consisted of M4s with their original 75mm gun replaced by the VO1000 75mm high-velocity gun used in the AMX-13. These conversions were intended to deal with the Egyptians new T-34/85 tanks and were issued to the 37th Armoured Brigade.



The French AMX-13 light tank was also delivered to the IDF in the 1950s. Design work commenced just after the end of the Second World War and it went into production in 1952. The French sold the Israelis 100 AMX-13s plus sixty Obusier automoteur de 105 Modele 50 self-propelled howitzers on AMX-13 chassis. These saw action in 1956, but were really only suitable for a reconnaissance role.





Confusingly the American-built M48 Patton tank was deployed by both the Israeli and Jordanian armies. The Israelis found the M48 was faster and more reliable than the Centurion and after the Six Day War the programme to up-gun it with the 105mm L7 gun was completed. The tank's high cupola was also removed as Israeli tank commanders fought 'head out' and the cupola made them even more vulnerable.





The M113 tracked armoured personnel carrier, known as the Zelda in Israeli service, has served the IDF well. By the late 1990s it was estimated that Israel had a fleet of up to 6,000, making it the largest user outside the United States. Like many Israeli armoured vehicles it has undergone numerous upgrades over the years. The second shot shows one of the more recent models, the mesh screen on the hull is designed to keep rocket-propelled grenades at bay. The vast array of aerials also indicates that it is a command vehicle.

## Chapter Two

# Moscow and the Arab Armies

**M**assive Soviet tank supplies to Egypt and Syria made sense in light of the good tank country and the fact that both were regularly embroiled in large conventional wars with American-backed Israel. These proved ideal testing grounds. In many cases Soviet weapon shipments were funded through generous loans, barter deals or simply gifted – Moscow’s arms industries rarely saw a penny in return. After the Second World War Czechoslovakia was permitted to produce the T-34/85 main battle tank (MBT) and SU-100 self-propelled gun, largely for export to the Middle East.

The scale of Soviet armour manufacturing at its height was just mind-boggling. The tank plant at Nizhniy Tagil was supported by at least three other tank factories at Kharkov, Omsk and Chelyabinsk, while armoured fighting vehicles were manufactured at seven different sites. During the 1980s the Soviets were producing approximately 9,000 tanks, self-propelled guns and armoured personnel carriers a year. The USSR’s East European Warsaw Pact allies managed another 2,500.

Moscow exported almost 8,000 tanks and self-propelled guns and over 14,000 other armoured vehicles to the developing world during that decade alone. In effect they exported two and a half years’ worth of production. The Soviets ability to churn out such vast numbers of tanks meant that on at least two occasions they were able to save Egyptian and Syrian forces from total disaster.

The T-55 was licence-built in Czechoslovakia from the mid-1960s for domestic and export purposes, followed by the T-72 in the late 1970s. Czechoslovakia also exported upwards of 3,000 of its OT-64 APC, Iraq being the biggest customer. Similarly, Poland built the T-34/85, T-54/55, T-62 and T-72. Additionally Bulgaria and Poland manufactured the Soviet MT-LB multi-purpose APC, large numbers of which were exported to countries such as Iraq. Romania manufactured T-55s from the late 1970s.

In the mid-1950s Egypt arranged a major arms deal with Czechoslovakia, sponsored by Moscow, for 530 armoured fighting vehicles (230 tanks, mostly T-34/85s but also some IS-3s, 200 BTR-152 APCs and 100 SU-100 self-propelled guns). These were followed by 120 new T-54s. Some of the armour saw action in the 1956 Suez Crisis against the Israeli, British and French armies. During 1962–7 the Egyptians received 290 T-54s, twenty-five IS-3s, fifty PT-76 light tanks as well as hundreds of BTR40/50/60/152 wheeled APCs and SU-100s. Syria also benefited from this export bonanza and in the late 1950s took delivery of 200 T-34s, 150 T-54s, eighty SU-100s and 100 BTR-152s. In the early 1960s the Soviets began to supply Syria with additional T-54s and APCs and by 1967 the Syrian Army had 750 tanks and 585 APCs.

The USSR was swift to make good losses in the 1967 Arab–Israeli war, which witnessed massive tank battles. Arab forces lost approximately 1,000 tanks to superior

Israeli capabilities. Most notably, Syria received the T-62 before Moscow's Warsaw Pact satellite countries and was even supplied with the BMP-1. The shattered Egyptian Army also enjoyed Moscow's generosity. Between 1967 and 1973 it was supplied with 1,260 T-54/55s and between 1971 and 1973 400 T-62s. Moscow also supplied 550 BTR-152/60 APCs and 150 BMP-1 infantry fighting vehicles (IFV). Czechoslovakia, at Moscow's behest, provided another 200 APCs.

Once again all this equipment was deployed against Israel during the 1973 Yom Kippur War and the Israelis accounted for another 2,000 Arab tanks. During the fighting and its immediate aftermath the Egyptians and Syrians received 1,200 additional tanks, which helped stave off complete collapse.

The 1973 war proved the almost total obsolescence of the T-54/55, which made up the largest proportion of the Arabs' tank forces. Even the limited numbers of T-62s that they deployed were hampered by the lack of an effective fire-control system. Nor could the T-54 or T-62 stand up to the tube-launched optically-tracked wire-guided (TOW) anti-tank missiles supplied by the Americans halfway through the war – the Israelis claimed 100 per cent success with the TOW missiles.

By the 1980s the USSR had a staggering 52,600 tanks and 59,000 APCs in its active inventory, with another 10,000 tanks and APCs in storage. After the Warsaw Pact force reductions talks in Eastern Europe, Moscow agreed to withdraw 10,000 tanks and destroy half of these without batting an eyelid. Warsaw Pact members also agreed to cut tank numbers by almost 3,000.

At the time the Soviets began to field newer tanks, such as the T-64B, T-72M1 and the T-80, while retiring older models T-54/55 and T-62. They also improved their forces by fielding large numbers of the tracked BMP-2, as well as improving the earlier BMP-1. The net result was a huge surplus of armoured fighting vehicles available to the developing world.

When the Israelis invaded southern Lebanon in 1982 they found the Palestinian Liberation Organisation's armoury included sixty old T-34/85s and twenty T-54/55s. The Syrian Army, caught up in the fighting, lost 200 T-62s, 125 T-54/55s, nine T-72s and 140 APCs.

Afterwards Syria went on a massive armoured-vehicle buying spree. In the early 1980s Syria ordered 800 BMP-1 APCs as well as large numbers of T-72 MBTs and BTR-80 APCs. Then, in the early 1990s, the Syrians ordered 252 T-72 tanks from Czechoslovakia and another 350 from Russia.

The Israelis tended to gain welcome intelligence windfalls when it came to Arab equipment. For example, neither the T-62 nor the T-72 tanks, at the time newly delivered, remained a mystery for very long. In September 1969 the Israelis launched a series of raids south of Suez City, taking the War of Attrition to the west of the canal. This involved an assault across the Gulf of Suez by Arab-speaking Israelis operating captured Russian-built tanks and armoured personnel carriers. They succeeded in seizing and ferrying back to Israel two T-62 tanks, which had only just been delivered to Egypt.

Trials with these soon reassured the Israelis that their Centurions had nothing to worry about. This was lucky considering the Arabs' growing numerical superiority in equipment thanks to the generosity of Moscow. In the case of the T-72 it fell into Israeli hands in 1982, just after it entered service with the Syrians.

As well as tanks Moscow provided the Arab armies with two key man-portable anti-tank weapons. The first and by far the most famous is the shoulder-launched unguided rocket-propelled grenade, or RPG-7 for short, which appeared in the early 1960s. At just over 3ft (95cm) long this weapon was essentially an updating of the Second World War American Bazooka and the German Panzerfaust. With the grenade loaded, this adds another 15in (38cm) to the length of the launcher.

Although reloadable, with a maximum range of just under 1,000 metres, it is only accurate at about a fifth of this. Another drawback of certainly the early RPG is its weight. It is quite heavy and, although it can be fired while kneeling or standing, precious time can be lost lifting the launcher to the shoulder, steadyng it and taking aim. The upshot is that an RPG gunner has to get precariously close to a target and expose himself in order to make an accurate shot. Nonetheless, a grenade can be fired in a matter of seconds.

The RPG is cheap to produce, very rugged and simple to use. In fact it has proved so successful that it has been widely copied and employed in almost every single conflict from the Vietnam War onwards. It proved a firm favourite of the Mujahideen during the Soviet–Afghan War and with the Taliban in the subsequent fighting in Afghanistan during Operation Enduring Freedom.

The second anti-tank weapon, while having a much greater reach, is much harder to operate. The 9K11 Malyutka ('little one' in Russian) – better known by its NATO reporting name, the AT-3 Sagger – is a wire-guided anti-tank missile with a range of 3,000 metres. This versatile weapon can be deployed by infantry in a portable suitcase, on armoured vehicles and helicopters. The missile is guided to its target by a small joystick that requires a very well-trained operator. On the early models flight stabilisation time meant that it could not engage targets at less than 500 metres, so an RPG gunner was needed to cover this dead zone. Also, beyond 1,000 metres it requires a periscope sight.

The weapon saw action for the first time in 1972 during the Vietnam War, when the North Vietnamese Army used it to knock out a South Vietnamese M48 tank and an M113 armoured personnel carrier. The following year the Sagger came as a terrible shock to Israeli tankers; however, they were quick to adapt and artillery was used to saturate the area where tank 'hunter killer' squads were lurking. They also resorted to firing in front of their own tanks to whip up the dust to obscure the view of the Sagger operators and RPG gunners.



A Czech-built Syrian T-34/85 disabled near Ein Fite in the Banias area in 1967. These were modified with a large and cumbersome turret mount for the DShK machine gun and large stowage boxes on the hull. This vehicle was painted dark green and the Arabic inscription reads: 'In memory of Hermiz Yunis Butrus', a 1948 war hero.



While Israel relied on American, British and French armour, the Arab armies (with the exception of Jordan) turned to the Soviet Union and the Warsaw Pact to meet their tank needs. In the mid-1950s the Soviet Union sponsored a deal for Czechoslovakia to provide 230 tanks, consisting mainly of T-34/85s (seen here) but also some IS-3 heavy tanks, 100

SU-100 self-propelled guns and 200 BTR-152 armoured personnel carriers. These were used to create the Egyptian 4th Armoured Division.



A poor-quality shot of a knocked-out Egyptian T-34/85 destroyed during the fighting at Rafah in the Gaza Strip during the Six Day War in June 1967.



An Egyptian ISU-152 assault gun captured by the Israelis. Like the T-34/85 and SU-100 this was another veteran of the Second World War, having seen action against Nazi Germany.



Syrian T-62s knocked out on the Golan Heights in 1973. During the 1960s the Syrian 14th and 44th armoured brigades were formed using T-54s, T-55s and T-34/85s. After the Six Day War Syria received the brand-new T-62 tank before Moscow's Warsaw Pact allies. It did not take the Israelis long to lay their hands on examples of this tank for technical exploitation.



A Syrian T-55 – these were relegated to support the infantry divisions once the newer T-62 arrived. The machine gun mounted on the turret is mainly intended for air-defence purposes but a gunner would need nerves of steel to face down an attacking jet fighter.



Iraq also received thousands of Soviet-built tanks and armoured fighting vehicles. This is a reconditioned T-55 serving with the Iraqi 9th Mechanised Division. In 1973 the Iraqi 3rd Armoured Division fought alongside the Syrians.



A captured T-62 from the Egyptian or Syrian army; note the rather odd camouflage. Israel became adept at reusing such captured armour and also passed tanks onto their Christian allies in southern Lebanon.



The Soviet T-72 entered production in 1972, but was not seen in public until 1977. It was subsequently supplied to both the Iraqi and Syrian armies. The Syrians ended up with 1,600 – this particular example is a refurbished Iraqi T-72.





Following the defeat of the Arab armies in 1967, as well as supplying the T-62 tank Moscow also provided Egypt and Syria with the BMP-1 infantry fighting vehicle. This was armed with a 73mm close-support weapon and a rail-mounted Sagger antitank missile, which is visible in the second shot. The Arab tendency to use the BMP as tanks often resulted in heavy losses.



Egyptian gunners running to man their Soviet-supplied field gun. After the Yom Kippur War in 1973 the Egyptians regularly shelled Israeli positions on the east bank of the Suez Canal – in one barrage alone it was estimated they

expended 10,000 shells in the space of a few hours.

## Chapter Three

# 1948 The Creation of Israel

**I**srael came into existence on 14 May 1948 and immediately found itself under attack by its hostile Arab neighbours. The Israelis literally stole the armour to form the basis of their very first armoured brigade from Haifa Airport. They attempted to take four Cromwell tanks from under the very noses of the British Army before the withdrawal, but only got away with half of them.

The Israeli forces, now renamed Zvah Haganah Le Israel ('Zahal'), or IDF, set about completing two armoured units, the 7th Mechanized and 8th Armoured brigades. The latter's order of battle consisted of a Daimler armoured car and an Otter reconnaissance vehicle, two Cromwell tanks and a solitary Sherman. These formed the 'English Company' of the 82nd Tank Battalion and ten newly arrived French Hotchkiss tanks formed the 'Russian Company'. The Syrian tanks were rebuffed at Degania kibbutz, but Egyptian armour fared better at Yad Mordechai and Nitzanin kibbutzim.

When fighting broke out the Jews began to buy old German guns from Czechoslovakia, with 4,400 rifles and machine guns subsequently arriving in two shipments. Toward the end of the conflict, although the Israeli forces were still outnumbered, they were better equipped. The army had Czechoslovakian and French weapons and the air force had British-built Spitfires and Czech-built Messerschmitts, also supplied by Czechoslovakia. Ironically a ship bearing much-needed armoured vehicles and other weapons imported by Irgun was sunk by the Jewish government for fear of an armed revolt by dissidents. Just as important were Czech-Jewish volunteers who were allowed to emigrate to Israel; these included tank crews and pilots.

In mid-1948, during the third stage of the War of Independence, Israel was invaded by the armies of five Arab countries: Egypt, Iraq, Lebanon, Syria and Transjordan. Field Marshal Montgomery estimated that the Jews would be crushed within two weeks as they would not be able to withstand the Arabs' heavy weaponry.

The Israelis launched a ten-day counter-offensive on 9 July, with their tanks spearheading the attack on the vital Lydda Airport. Yitzhak Sadeh's 8th Armoured Brigade drove south-west from near Tel Aviv and took a number of Arab villages and Lydda north of the city. However, it became bogged down in fighting with the armoured cars of the Arab Legion near Beit Nabala.

The Arab Legion from Transjordan (modern-day Jordan) was driven back, as were the Egyptians and Syrians. By the time a truce was agreed Israel had the initiative. The 8th Armoured Brigade was bolstered with half-tracks mounting 20mm, 2-pounder and 6-pounder guns to provide a much-needed self-propelled anti-tank capability. When the fighting renewed three months later the Egyptians were pushed back once more.

By October 1948 the Egyptians were deployed mainly in defensive strips two to five

miles wide that ran along the main roads in the Negev. These defences were held by 15,000 men from two regular infantry brigades, nine volunteer battalions, a reinforced brigade, two regiments of artillery and an armoured battalion. Starting on 4 October the Egyptians counter-attacked six times, throwing away almost an entire armoured battalion equipped with Bren gun carriers and armoured cars.

These attacks convinced the Israelis that they needed to conduct an all-out attack on the Negev. The Israeli High Command decided to commit the Givati, Negev and Yiftach infantry brigades, supported by a battalion from the 8th Armoured Brigade – some 15,000 men in total – on 15 October. The Israeli tanks, including four ex-French Hotchkiss tanks and two old British Cromwells, struck at Iraq el-Manshya. Among the crews of the latter were British Army deserter Sergeant Major Desmond Rutledge in one and sergeants Michael Flanagan and Harry MacDonald in the other.

The tanks and infantry soon came under Egyptian artillery fire. MacDonald's tank suffered gearbox failure and Flanagan was wounded through the driver's port but broke through the Egyptian barbed wire. Finding themselves on their own, Flanagan and MacDonald withdrew and managed to take Rutledge's tank under tow. One of the Hotchkiss tanks ended up in an anti-tank ditch.

On 9 November the Israeli tanks were thrown into battle again, with a successful attack on Iraq es-Suweidan following a heavy artillery bombardment. The following month, on 27 December, the tanks, half-tracks and armoured troop carriers of 8th Armoured Brigade stormed El Auja after much hardship. Rutledge recalled: 'What a Christmas this was! Stuck in the desert, freezing, miserable, and waiting for a road to be built under the enemy's nose!' Just before the ceasefire the brigade launched one last attack south of Rafah, suffering heavy casualties in the midst of a sandstorm. After the war, tankers Rutledge and Flanagan stayed on in kibbutz settlements with their families.

While the Lebanese invasion was half-hearted, the fighting with the Syrians was much more threatening. A Syrian Army column supported by tanks gathered south of the Sea of Galilee with the aim of breaking through towards Tiberias and Nazareth. To block the Syrian armour the men of Degania kibbutz had to rely on petrol bombs. When the tanks broke through the defences they were set alight with Molotov cocktails and shelled by two ancient artillery pieces in the nearby hills. The Syrians switched their efforts north and took Mishmar Hayarden. In the aftermath of the 1948 Arab-Israeli war discontented young officers in Syria booted out the politicians and there followed twenty years of military government.

The city of Jerusalem found itself partitioned, with the Israelis holding the western half and the Jordanians the eastern half. Jordan annexed East Jerusalem in 1950 and three years later declared it the second capital of Jordan. Inevitably this situation sowed the seeds for yet more conflict. With Jordanian troops in Jerusalem and on the west bank of the river Jordan, this was to have serious ramifications for the Six Day War in 1967.



Following the Second World War the Arab armies were reliant on wartime surplus from the Americans, British and French to build up their armoured forces. These Syrian tracked infantry carriers, or Chenillette de Ravitaillement d'Infanterie, were built during the 1930s and formerly belonged to the French Army in the Levant. The Syrians also gained R-35 and R-39 light tanks from the Vichy French forces as well as armoured cars and Bren carriers from the Free French units.



Small arms also came from surplus European weapon stocks. This Syrian machine-gun team is armed with an ex-German MG34 – again wartime surplus.



In the run up to the 1948 Arab–Israeli war most of the region's armies consisted largely of infantry. These men are Syrian mountain troops photographed while on manoeuvres in 1947 – at the time the Syrian premier warned that the Syrian Army would move into Palestine in due course.



This is a British Humber Mk IV armoured car serving with the Egyptian Army in 1948. The Mk IV went into production in 1942 and was armed with a 37mm gun instead of the 15mm Besa machine gun on the previous models. The Egyptians also had a number of Humber Mk IIIIs, Marmon-Herrington Mk IVFs and some Staghound armoured cars.



Israeli gunners with a former British Army 6-pounder anti-tank gun. The 57mm gun served the Allies well during the Second World War and was put to good use by the Israelis against the Arabs' French-built light tanks.



Israel's first tank unit was equipped with British Cromwells (left) and French H-39 tanks (right). Before the British left Palestine Haganah gained, through bribery and theft, a Daimler Mk I armoured car, a Canadian-built GM Otter I reconnaissance vehicle and a pair of Cromwell tanks. A Sherman was also salvaged from a British Army scrapyard near Haifa. The Sherman and the Cromwells formed the 'English Company' of the 82nd Tank Battalion, while the imported H-39s formed the 'Russian Company'.



The first clash with Syria's tanks during the 1948 war occurred at the Degania kibbutz where several R-35s were knocked out. Though well armoured, these tanks were worn out and difficult to maintain. Also the Syrians insisted on breaking their solitary tank battalion into company-sized units to support the infantry brigades, which meant the Israelis could deal with them piecemeal.



Israeli troops in the ubiquitous jeep; this vehicle was also used to mount an anti-tank recoilless rifle. The IDF became masters of manoeuvre warfare and ensured that even their reconnaissance units were well armed.





It was not long before the Israelis were upgrading the fire power of their Sherman tanks with a 105mm gun to create the Super Sherman. This enabled them to stay in service well beyond their 'sell-by' date. The second shot shows an upgraded M51 Sherman.



The British also helped the Egyptians improve their tank capabilities after their light tanks proved all but useless in 1948. About three battalions of Sherman M4A2s were provided, along with 200 Archer self-propelled anti-tank guns (seen here) and forty-one Centurions.





The arrival of the American M48 and M60 Patton gave the Israelis ever greater numbers of tanks that could out-shoot the Arabs' Soviet-supplied armour. The second vehicle is covered in Blazer – enhanced reactive armour.

## Chapter Four

# 1956 The Conquest of Sinai

**D**uring 1955 and 1956 Israeli civilians were subjected to escalating terrorist attacks conducted from Gaza and the Sinai. When Egypt then sealed off the Israeli port of Eilat by blockading the Gulf of Aqaba Israel considered this an act of war.

Operation Kadesh, the Israeli invasion of Sinai in 1956, proved the lasting importance of the tank on the battlefield to the IDF, and that Second World War weaponry was likewise still very serviceable. Despite the vast quantities of Soviet-supplied military hardware deployed by the Egyptian Army, the relatively ill-equipped Israelis were to drive up to 50,000 Egyptian troops from their well-prepared and well-fortified positions in the space of just three or four days.

That summer roughly a third of Egypt's 150,000 strong army was deployed in the Sinai, the vast peninsula bordered by the Gulf of Suez to the west and the Gulf of Aqaba to the east. Most of them, though, were infantry, with the bulk of the armour protecting northern Egypt. Troops were also positioned in the canal zone and along the Mediterranean, especially in the Nile delta, to counter any attacks by the British or French. The Egyptians had 150 MiG jet fighters but just thirty fully trained pilots to operate them.

Ironically Egyptian intelligence concluded that the danger of an Israeli pre-emptive war had passed. Crucially, an infantry division plus two armoured brigades were withdrawn from Sinai, leaving one Egyptian division and the Palestinian division (holding Gaza), plus a battalion of scout cars in the south and a reinforced infantry battalion in Sharm al-Sheikh.

The defence of northern Sinai relied on a series of fixed defences, which included the heights at Rafah near the coast and Abu Aghelia, where a defensive system covered the road to Ismailia. Once the Israeli paratroops landed, Cairo sent reinforcements, consisting of an infantry brigade followed by the 4th Armoured Division. Under Operation Beisan the Jordanian and Syrian armies were to counterattack Israel, but never got off the ground; like the Egyptians, the Syrians did not really know how to use their Soviet-supplied hardware.

By October 1956 Israel had 100 French-supplied AMX-13s and several hundred M4 Shermans and Super Shermans. Just two days before D-Day France supplied 200 6x6 trucks with front-wheel drive. Half were assigned to the paratroop brigade and half to 9th Brigade, which was to trundle to Sharm al-Sheikh in southern Sinai. They had three objectives: take control of the Straits of Tiran, which the Egyptians had closed to Israeli shipping, thereby blockading the Israeli port of Eilat at the head of the Gulf of Aqaba; secure the approaches to the Suez Canal; and destroy the Egyptian forces in Sinai.

For the Israeli invasion of Sinai each of the IDF task forces were allocated two infantry brigades and a mechanised brigade. In the case of the northern task force, this was backed

by the 27th Armoured Brigade, consisting of one motorised infantry battalion, three squadrons of Shermans and one squadron of AMX-13s. The southern task force was allocated the 37th Armoured Brigade, this time with two battalions of motorised infantry, a battalion of Shermans and one squadron of AMX-13s. The Command Reserve comprised the 7th Armoured Brigade with the Shermans of the 82nd Tank Battalion and AMX-13s of the 79th Tank Battalion.

Some 395 Israeli paratroops from the 202 Parachute Brigade dropped on Mitla Pass, about thirty miles from the canal, on 26 October 1956, while more drove on Kuntilla in Central Sinai, Kusseima and Nakhl. Only half the contingent of supporting AMX-13 tanks survived the journey to Sinai, for the brigade had been acting as a decoy on the Jordanian frontier. To the south the 9th Infantry Brigade attacked Ras an-Naqb on the Gulf of Aqaba, while to the north the 7th Armoured and 4th Infantry brigades pushed on al-Qusamah.

The Israeli 7th Armoured soon found itself tangling with the Egyptian 1st and 2nd armoured brigades. In the meantime, unfortunately, the Israeli Air Force attacked friend and foe alike. The Egyptian-Israeli air war during the 1956 Suez Crisis was fairly limited with only fourteen engagements recorded. The Israelis lost two aircraft in air-to-air combat and the Arabs seven. However, the Egyptian T-34s and SU-100s were driven back towards Ismailia.

To the south of Abu Uwayulah the Egyptians had positioned ten elderly British-built Archer self-propelled anti-tank guns, supported by artillery and anti-aircraft guns. Although the Israelis lost all their tanks in the assault, they took Ruafa. The 37th Armoured and 10th Infantry brigades then attacked Um Katef.

At Rafah the Israelis attacked the Egyptians, employing the 27th Armoured Brigade equipped with AMX-13s and Super Shermans. This cut Gaza off from the Sinai and left the Israelis free to advance on El Arish, Sinai's most important city. This then led to a major battle at Jeradi Pass, but AMX-13s supported by the IAF hooked left and stormed the summit of the pass. Unfortunately on 2 November the Israeli 37th Armoured Brigade ran into an ambush set by 7th Armoured, leading to a number of friendly-fire casualties.

The British Foreign Secretary Selwyn Lloyd recalled: 'We had no knowledge of the Israeli campaign plans but it was clear that they were carrying all before them ... While this was going on, our invasion fleet was sailing towards Port Said. Its speed was limited by the fact that the tank landing craft could only do five knots an hour.'

On 6 November 1956 the lead units of 1,000 Royal Marines from 40 and 42 Commando attacked Port Said using Buffalo tracked landing vehicles at Sierra Red and Sierra Green assault beaches. The lack of LSTs (landing ship, tank) meant that subsequent waves had to come in via landing craft. They were supported by Centurion tanks of C Squadron, 6th Royal Tank Regiment (RTR). These were used to good effect against the defenders of the Customs House, but it took air strikes to force the Egyptians from the Navy House.

Once the port facilities were secured, A and B squadrons, plus the regimental HQ of 6 RTR, were able to land. These provided invaluable covering fire and provided mobile screens for the marines. They were also used to move towards al-Qantarah, setting up

defensive positions at al-Cap with 2nd Para.

Meanwhile, for the loss of thirty tanks and half-tracks the Israelis destroyed or captured in excess of 200 Egyptian armoured vehicles. This victory convinced Israel of the need for large mobile armoured formations and led to the grouping of units to create 'ugdas' or divisional-strength task forces. These comprised a mixture of armoured brigades supported by mechanized or infantry brigades.

Selwyn Lloyd in his book *Suez 1956* said: 'It is interesting to speculate as to what would have happened if we had succeeded in establishing an international regime for the canal. I doubt whether the Six Day War in June 1967, or the Yom Kippur War in 1973, would have taken place.'

In the aftermath of Operation Kadesh Brigadier Israel Tal was instrumental in transforming Israel's armoured corps into a truly formidable weapon. A former veteran of the British Army, he had fought in North Africa and Italy during the Second World War. Subsequently he joined Haganah, the Jewish underground army fighting to oust the British from Palestine. He used skirmishes along the Syrian border as a testing ground and got his tank gunners so proficient that they could hit targets up to eleven kilometres away.

In terms of training, effectiveness, equipment and firepower, by 1967 Israel easily had the best armed forces in the Middle East. Combined, the Arab armies had more weapons than the Israelis, but were incapable of deploying them in a decisive manner. While Egypt and Israel had roughly the same number of artillery, tanks, armoured personnel carriers and self-propelled guns, if you counted Jordan and Syria then the Arabs had an advantage of two-to-one. While the Israelis and Egyptians had about the same number of jet fighters, the Egyptians had four times the numbers of bombers. Again Israeli pilots were far superior and were capable of launching a highly effective pre-emptive strike.

Likewise the IDF were able to mobilise much faster than the Arab armies. They could muster their full twenty-six brigades, including four armoured and four mechanised, in the space of forty-eight hours. By contrast the Egyptians could only muster ten brigades in the same timeframe, while Jordan could manage eight and Syria six. The Arabs had another five brigades that they could call on, but Israel's intention was that the fighting would be over before they even reached the battlefield. In the case of the Egyptian Army many of the reservists called up were badly trained. For example, some had served with the artillery only to then be sent to the armoured forces.

In response to Moscow supplying Egypt with T-54 main battle tanks, Israel purchased Centurion Mk IIIs and Mk Vs from Britain. These were up-gunned with the new 105mm L7 gun, replacing the older 20-pounder. Initially the Israeli tank crews were far from keen on the Centurion, but by 1967 they had 250 which had been modified into a war-winning weapon. America also supplied 200 M48 Patton tanks via West Germany during the early 1960s.

In addition the Israelis, with the assistance of the French, also up-gunned 200 Shermans, replacing the 75/76mm gun with a 105mm in an effort to counter evergrowing numbers of Egyptian T-54s. This was dubbed the M51HV or 'Isherman', i.e. Israeli

Sherman. The Israelis also began to up-gun their M48s with the 105mm gun. In 1967 the Isherman was one of the fastest tanks in Israeli service; despite the age of the basic design it proved quite effective.

To give the Israeli tank battalions close support, Zahal Ordnance developed the M9 half-track, mounting a 120mm mortar. Somewhat surprisingly, these were to prove effective against Jordanian Patton tanks during the Six Day War.

Israel became convinced that it needed to neutralise the growing military might of its neighbours. In a pre-emptive strike Israel sought to take out the Egyptian garrison in Sinai and then turn on Syrian forces on the Golan Heights – Jordan also found itself dragged into the hostilities. All this new armoured kit was put to the test in 1967 with the Six Day War.



French AMX-13 light tanks served with the 7th and 37th armoured brigades and the 202nd Parachute Brigade during the Israeli invasion of the Sinai. Unfortunately both armoured brigades bumped into each other at Um Katef on 2 November 1956 and 7th Armoured knocked out eight friendly tanks before realising what was happening.



*Above and below:* M1 Shermans (M4A1 76mm) such as the one in the first photo served with the Zahal's 7th Armoured Brigade during Operation Kadesh in 1956. The Israeli armoured corps was also equipped with the standard M4 tank, armed with the 75mm gun, that has seen service on all fronts throughout the Second World War.

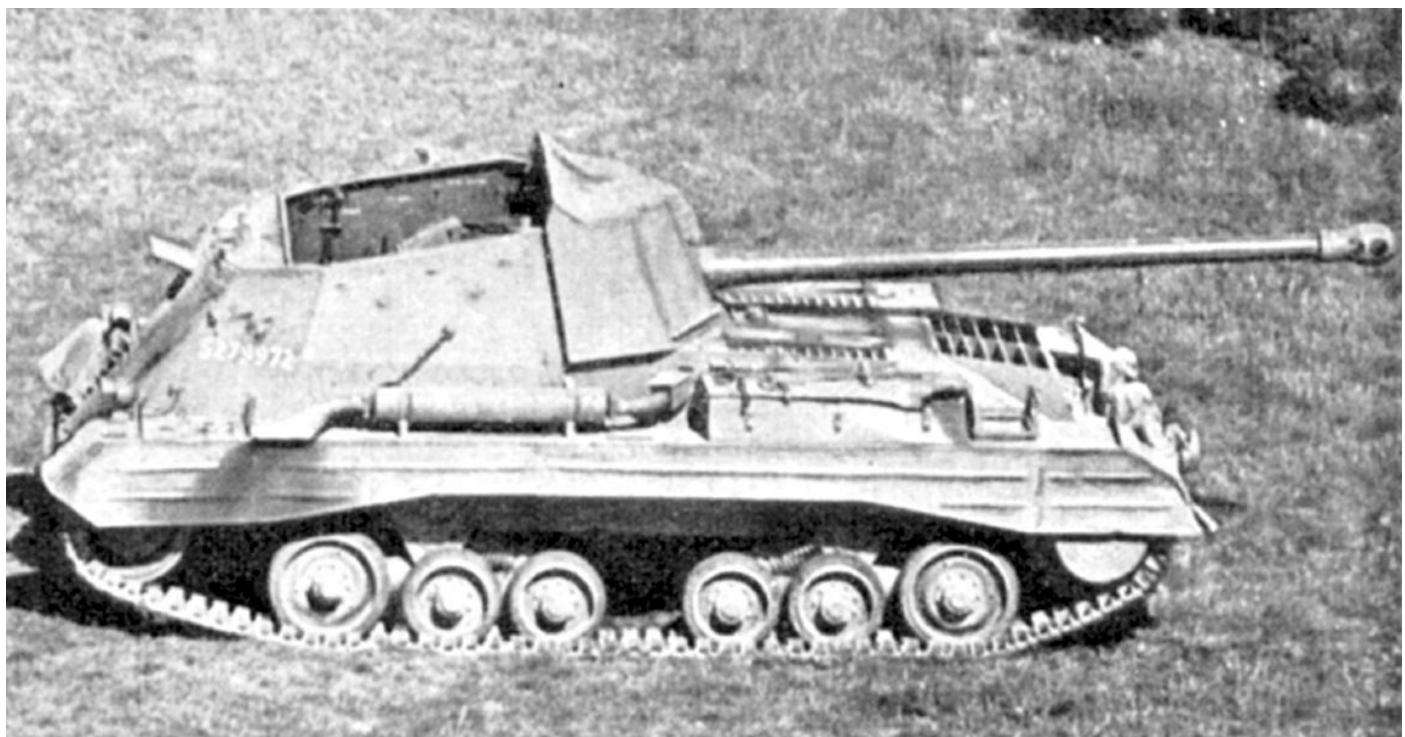




Knocked-out Egyptian Shermans in the Sinai desert. The Egyptians had two main armoured units in Sinai: firstly, the 3rd Armoured Battalion based at El Arish and at Rafah in the Gaza Strip, equipped with Shermans and M4 FL10s (Shermans with French AMX-13 turrets); secondly, there were the Archer self-propelled anti-tank batteries.



An Israeli jeep edges its way past the abandoned remains of an Egyptian convoy caught in the Sinai. The field gun on the left is a British Second World War-vintage 25-pounder.



The Egyptians had 200 British-supplied Archer self-propelled anti-tank guns, of which at least four batteries – each with 11 guns – were deployed in the Sinai. The 78th and 94th anti-tank batteries were at Abu Agheila while two more were at El Arish and Rafah. This design was a typical British bodge job.



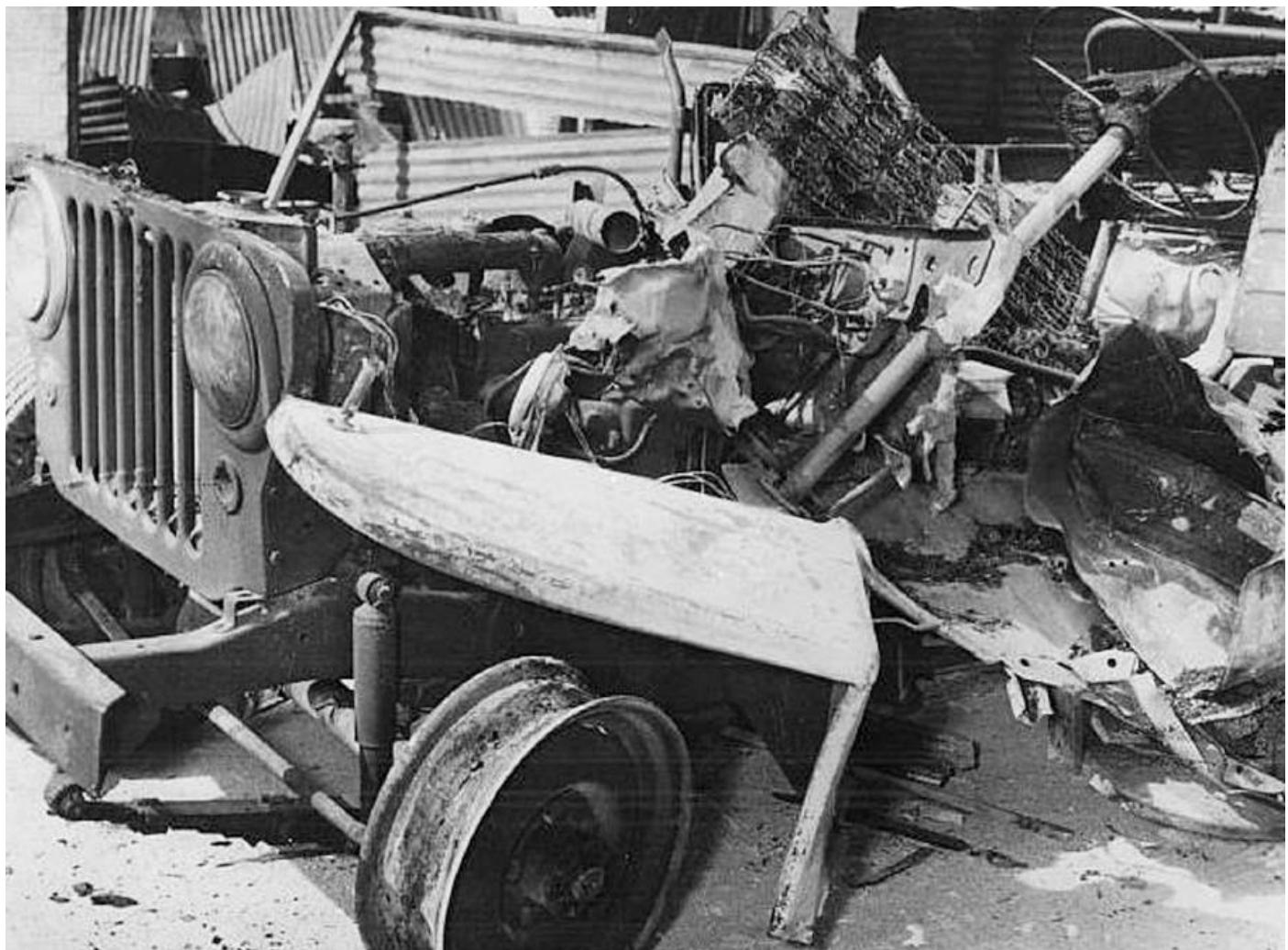
When the Israelis attacked the 78th Anti-Tank Battery based at the Um Katef–Um Shehan crossroads the unit was reinforced by three more Archers, bringing its total strength up to fourteen guns. Although the 17-pounder anti-tank gun packed a punch it faced toward the rear of the vehicle and the open fighting compartment left the crew vulnerable to indirect fire.



During Operation Kadesh the Israelis knocked out or captured a total of forty Egyptian Archers. This gun, like the previous one, was emplaced to try and provide some additional protection for the crew.



Israeli troops examining an abandoned Egyptian jeep sporting a picture of Egyptian President Nasser.



A smashed jeep following clashes between the Egyptians and Israelis in the Gaza Strip. The Israeli 27th Armoured Brigade and the 1st Golani Brigade attacked the Gaza Strip on the morning of 1 November 1956.



Syrian prisoners are exchanged for captured Israelis in early 1956 – in a decade's time the Syrian Golan Heights would be the scene of a major tank battle.



Female Syrian recruits armed with Czech-made submachine guns.



Danish troops serving with the United Nations set up a machine-gun post overlooking the Suez Canal. These troops were deployed to oversee the withdrawal of the Anglo-French invasion force from the canal zone and Port Said.



More UN troops, this time Yugoslav soldiers with an M8 armoured car in the Sinai desert, deployed to oversee the Israeli withdrawal. The UN Emergency Force was designed to ensure Israel's security by maintaining Sinai as a buffer zone.

However, in 1967 the Egyptians insisted that the UN leave and two armoured and five infantry divisions rolled into Sinai, setting the stage for yet another war.

## Chapter Five

# 1967 The Six Day War: The Sinai

**L**ieutenant Yaël Dayan (daughter of General Moshe Dayan, the newly appointed Israeli defence minister) recalled on 3 June 1967, just two days before the Six Day War broke out,

We flew [in a helicopter] very low above our lines – an armoured brigade composed of three battalions: one Centurion battalion commanded by Natke; the others, Sherman tanks and armoured infantry, headed by Sason and Herzl; a specially combined reconnaissance force with AMX light tanks and half-tracks and jeeps commanded by Arie.

General Israel Tal noted that the Egyptians were:

blocking all the main lines of advance through the desert with massive troops concentrations and strongly fortified positions, some of which had been prepared over the last 20 years. The only line of advance westwards from Israel's southern border that was not blocked was the one taken by General Yoffe and his armoured brigade across the dunes – the Egyptians evidently believed them impassable.

The Israelis struck on 5 June 1967 with their air force swiftly gaining almost complete air supremacy in a series of well-coordinated raids on Arab air bases. Just before the tanks rolled forward, the Israeli Air Force's timing and co-ordination was superb, particularly in catching the Egyptian Air Force as the early morning mists lifted on the Nile delta. Multiple targets were bombed, not only in the Sinai but also west of the Suez Canal. The preliminary Israeli air strikes hit eight Egyptian airfields in Sinai, on the canal and in the Cairo area; these then broadened to encompass a further nine Egyptian airfields.

The Egyptians lost a staggering 304 aircraft in a single day. The blow was decisive: Egypt's air force could not support its ground forces in the Sinai, giving the Israelis a free hand. After securing air superiority the outcome was never in doubt. Israel then turned its attention to its other Arab neighbours, claiming another ninety-nine aircraft. The Israelis destroyed the Jordanian Air Force, damaged the Iraqi Air Force and inflicted such losses on the Syrian Air Force that it took no further part in the fighting. Israel's losses on 5 June 1967 were just nineteen aircraft. For the whole of the conflict, Israel claimed 452 Arab aircraft for the loss of forty-six.

Defending the Sinai, the Egyptians had about 100,000 troops, 950 tanks, 1,100 armoured personnel carriers and over 1,000 artillery pieces. They were organised into one mechanised, two armoured and four infantry divisions, supported by four independent brigades. While the Egyptian infantry divisions were supported by Second World War-vintage T-34/85s, the 4th Armoured was equipped with the newer T-54/55 medium tanks and PT-76 amphibious light tanks; the 6th Mechanised was also equipped with Soviet T-54/55s and some ancient Joseph Stalin heavy tanks.

Crucially some of the units in Sinai were 40 per cent under strength and some armoured units only had half their number of tanks. When the Israelis struck, General Salah Mushin and his deputy were absent from the Egyptian field army HQ in Sinai as they were attempting to attend a conference with Field Marshal Abd al-Hakim Amer at Bri Tamada airfield. The following day the Egyptian Commander-in-Chief gave the order to fall back on the Suez Canal. The Egyptian Army collapsed, though a rearguard action at Jebel Libni brought the fleeing troops some time.

The Israelis had three ugdas facing Egypt and a fourth opposite Jordan. Against the Egyptians the Israelis had 70,000 men, comprising eleven brigades, two of which were independent, with the rest divided amongst the three divisional task forces. Four of the brigades were armoured, equipped with Centurion and Patton tanks; two were mechanised, each with a battalion of Shermans and two battalions of infantry transported in half-tracks.

Despite their shortcomings the Egyptian forces deployed in Sinai in June 1967 were well supported by tanks. Egyptian defences in Sinai were heavily influenced by Russian doctrine. They comprised a series of infantry strongpoints, which included dug-in T-34s and IS-3 tanks. Behind these lay the two armoured divisions with 450 Russian T-54s and T-55s.

The first defence line, with the Egyptian 7th Infantry Division holding Gaza and Rafah, was backed by approximately seventy T-34 and IS-3 tanks; in addition the 20th Palestinian Division in the El Arish and Bir Lahfan sector was supported by about fifty Shermans. The Shazli force in the Kuntilla area was made up of a mechanised task force with 120 T-54/55 tanks and the 6th Mechanised Division with ninety T-54/55s and some IS-3s. The second line of defence was the responsibility of the Egyptian 3rd Infantry Division holding the Jebel Libni, Bir Hassana and Jebel Harim sector with about ninety tanks. The 4th Armoured Division, with some 200 T-54/55 tanks, was in the Bir Gafgafa and Bir Thamad area.

Supported by the IAF, Israeli armour rolled forward and made short work of Egypt's tanks. Yaël Dayan was with General Arik Sharon's division, whose main target was Abu Agheila, defended by 16,000 men of the Egyptian 2nd Division holding Um Katef ridge with ninety tanks. Israeli gunners laid 6,000 shells on the Egyptian defences at Um Katef. On the opening day, she observed,

The Centurions met the first 'danger' or defence fire from one of the outposts and we moved to a higher point from which we could see our forces moving. For a while I felt as though I were watching a game. Tanks dispersed in the area, shells heard and seen, the wireless set like a background running commentary – there was something unreal about it all.

The Centurions came under heavy artillery fire and became stuck in a minefield until air support enabled them to push back or destroy the defending Egyptian T-34s. Sason's Shermans made a feint frontal attack on the Egyptian positions to draw their fire for the Israeli artillery spotters. In the meantime Natke's Centurions took Hill 181. Six of his tanks got into the enemy's defensive positions where they put about fifteen T-34s to flight

after knocking out five.

‘Perplexed, wandering, indecisive enemy tanks’, recalled Yaël Dayan in her diary, ‘were roaming on the road, along the road, on the sides, in opposite directions. About twenty of them were destroyed, one point blank from ten yards, after he was trodding along for five miles in our own column, either pretending he was Israeli or not knowing he wasn’t amongst his own Egyptian tanks.’

Once inside the Um Katef defences the Israeli tanks had to do battle with the Egyptian armour in order to open the Ntzana–Abu Agheila road. This fight took place on the Egyptians’ second line of defences of Sinai-Bir-Hassana and Jebel-Libni. The Israelis lost nineteen tanks, claiming sixty Egyptian tanks in return. This battle had special resonance for the Israelis for in 1956 both the 37th Armoured and the 10th Infantry brigades had been mauled fighting for the very same ground.

The bulk of the Egyptian armour deployed in central Sinai – comprising the 7th Armoured Division and a couple of armoured brigades, totalling over 500 tanks – was largely untouched. The Egyptians had an armoured brigade that, if it acted quickly, could have counter-attacked the Israeli Centurions that had struggled through the supposedly impassable sand dunes to the north of Um Katef. Instead they stayed put, ensuring an Israeli victory at Abu Agheila.

Egyptian tank losses continued to mount: about 150 tanks were counted on the road from Temed to Nahel. The area was described as the ‘Valley of Death of the Egyptian Army’. At Gaza the Israeli 7th Armoured Brigade, part of Brigadier General Israel Tal’s division, headed west over the border with Gaza and into Khan Younis. His second armoured brigade, the 60th, struck south into the sand dunes to outflank the minefields screening Rafah. The 7th Armoured ran into the Egyptian 7th Infantry Division and a battalion of Palestinians supported by 150 heavy Joseph Stalin tanks, with predictably bloody results.

In the early hours the Egyptian 4th Armoured Division was ordered to strike Tal’s left flank at Bir Lahfan. However, it came a cropper against the Israelis’ superior gunnery, losing nine tanks for the loss of just one Israeli tank. When the sun came up Israeli gunnery and the air force drove the battered 4th Armoured back towards Bir Gifgafah, losing anything from thirty to eighty tanks. The Israeli Air Force pounded the retreating Egyptian Army all the way back to the Mitla Pass and beyond.

The Israeli 7th Armoured Brigade sought to trap the Egyptian 4th Armoured Division at Bir Gifgafah, but only caught a brigade, which became embroiled in a tank battle with Israeli Shermans. Two battalions of Egyptian T-54s, which had come across the canal, ran into a single battalion of Israeli AMX-13s; luckily just at the right moment a company of Centurions arrived to save the day. By midday on 9 June the three ugdas had all linked up. The Israelis lost 122 tanks fighting their way across the Sinai – the Egyptians, though, had just 115 remaining from a force of 935.

The British defence attaché, a veteran of the Second World War, was flown over the Mitla Pass and reported that the Israeli attack was ‘devastating over a four to five mile

stretch of road running through the defile. All vehicles were nose to tail and in places double and treble banked. There was considerably more destruction than I had seen after the Axis retreat from Alamein. So far as can be ascertained, this destruction was the result of continuous air attack.' The Israelis set an ambush at the pass to catch the retreating Egyptian tanks.

The Israeli Air Force continued to pound the fleeing Egyptian armour mercilessly. Uri Gil, an Israeli pilot, recalled, 'It was the greatest vehicle cemetery I ever saw. I was not happy about the situation. They looked like humans, like victims, I blew up a fuel tanker at close range. There was no fire from the ground. It was slaughter. I didn't think that it was necessary. The war against Egypt was finished.'

The stubborn Egyptian rearguards fared no better. Elements of the 3rd Infantry Division holding the defences at Jebel Libni were surrounded and obliterated. At Bir Gifgafah about forty T-54s of the 4th Armoured Division brushed aside the Israeli AMX light tanks blocking their way. Nonetheless an entire Egyptian brigade was surrounded and wiped out and only about a third of the division escaped back over the Suez Canal.

Many terrified Egyptian tankers, in the face of the bombing and shelling, simply abandoned their vehicles. After first light on 8 June Sharon's division discovered an entire brigade of Egyptian Stalin tanks and self-propelled guns. When the unit's commander was captured he feebly explained he had left them where they were because he did not have orders to destroy them and if he had it would have alerted the Israelis to their presence.

The Israelis also came across Soviet-supplied amphibious PT-76 light tanks. Yaël Dayan recalled:

Well camouflaged and dug in was a brand-new amphibious Russian tank, large and yellow and unused. While we were trying to open a screw on it, Sason, the Shermans' commander, showed up with a few tankists. In five minutes they were in it traversing its gun. Seconds later the engine was started, and grinning Sason drove it out, manoeuvring it toward his battalion in a cloud of happy dust, saluting Arik [Sharon] on the way.

Sharon's division then ambushed a column of Egyptian armour, knocking out sixty tanks, over 300 other vehicles and 100 guns. Although some 5,000 Egyptian troops escaped into the desert, many perished from heat stroke and thirst. On reaching the Suez Canal on 8 June, Tal's division had knocked out fifty Egyptian tanks for the loss of just five.

That day Egypt reluctantly accepted the terms of the ceasefire resolution passed by the UN Security Council on 7 June. The Egyptian Army suffered 1,500 casualties; staggeringly, 80 per cent of the Egyptian Army's equipment had been smashed or taken by the Israelis. They lost 700 tanks, fifty self-propelled guns, 400 field guns, thirty 155mm guns and 10,000 trucks, much of which was pressed back into service by the triumphant Israelis.



During the 1960s the Soviet Union poured vast quantities of weaponry into the Arab states. As well as tanks this included large numbers of armoured personnel carriers such as the BTR-152, seen here on parade in Egypt, as well as the BTR-40, BTR-50 and BTR-60. The BTR-152 was the Soviet Union's first purpose-built APC and was capable of carrying up to seventeen infantrymen.



Israeli M51 Shermans churning up the sand in the Negev desert in southern Israel just prior to war. When the Egyptian military moved back into Sinai Israel felt compelled to launch a preemptive strike. The June war of 1967, often called the Six Day War, divides into three distinct phases: 5–7/8 June, the Israeli campaign against Egypt; 5–7 June against Jordan; and 9–10 June against Syria.



An Israeli reconnaissance team poised to strike – note the recoilless anti-tank rifle mounted in the jeep on the right. Such vehicles reached Ismailia on the Suez Canal and proved highly effective against Egyptian armour.



Israeli troops in the back of a half-track equipped with a mortar to provide mobile fire support. This in part helped compensate for the shortage of artillery.



A female IDF member driving a supply truck – keeping the tanks replenished out in the desert proved to be a major logistical headache.



Egyptian troops digging in on the Sinai peninsula. The bulk of the infantry were deployed in the coastal area forward of El Arish, while the armour was deployed just beyond the central ridge – from there it could assist the infantry or threaten the Negev.



Egyptian T-34/85s on the move in the El Arish area, photographed in late May 1967. For some reason they are travelling with their turrets reversed. President Nasser of Egypt and King Hussein of Jordan signed a defence treaty on 30 May but by this stage Israel's call up of its reservists was complete. Israel could not afford to remain mobilised for more than two weeks, which meant it had to act by early June.



Knocked-out Egyptian T-54s – both tanks appear to have caught fire. The Israelis had two major advantages: air superiority and the Centurion tank. The latter broke through the Egyptian defences by the evening of 5 June to reach the outskirts of El Arish. Thanks to the Israeli Air Force the Israeli armoured corps was able to fight its way through the

Egyptian tanks to the foot of the central ridge and on to the Suez Canal. The Egyptians lost the equivalent of seven divisions and about 800 tanks, of which 300 were captured intact. Fewer than 100 Egyptian tanks managed to get back over the canal.



A burnt-out Egyptian Walid APC, abandoned somewhere in the Sinai. This indigenously designed and built vehicle was inspired by the Soviet BTR-40 and only the engine and driver's cab were fully enclosed. Capable of carrying ten troops, it went into production just in time to see action in June 1967.





More abandoned Egyptian equipment, this time multiple-rocket launchers. The first vehicle's launcher is empty, indicating it may have got a salvo off; however, the second vehicle still has a full load. The Soviet Katyusha BM-23 mobile rocket launchers proved to be some of the most useful equipment captured by the Israelis; they were subsequently reused against their former owners in 1973 to supplement the IDF's artillery.

## Chapter Six

# 1967 The Six Day War: The West Bank

**W**hile the Israelis considered the build up of Egyptian forces on its western border in the Sinai a threat, to the east the Jordanians also had considerable tank forces on the West Bank that posed a potentially direct threat to Israeli-held West Jerusalem. Following Israel's surprise offensive into the Sinai on 5 June 1967 the Israelis switched their attentions from Egypt and launched pre-emptive attacks on both Jordan and Syria. Israeli jets were swift to silence Jordanian 25-pounders and 155mm guns on the West Bank, which had started to lob shells over the border to hit Tel Aviv and Kfar Saba.

The Jordanian Army in June 1967 consisted of the Western Command, responsible for the West Bank, Nablus and Jerusalem-Hebron sectors, and the Eastern Command, responsible for the Jordan Valley. Western Command's key armoured units were the 40th Armoured Brigade in the Damiya area and the 60th Armoured Brigade in Ain Qilt-Jericho area.

In the northern sector of the West Bank Jordanian forces in the Jenin-Nablus area were supported by the 12th Armoured Regiment, equipped with M47 Patton tanks. However, there were only two battalions from the Princess Alia Brigade covering the border between Qalqiliya and Tulkarem some fifteen miles away. These were supported by just 200 men from the local Palestinian National Guard – though the Jordanians were very reluctant to arm the Palestinians.

It was south of Jerusalem that the Israeli 10th Mechanised Brigade and Ugda Peled (consisting of the Bar Kochva and Uri Ram armoured brigades and an infantry brigade) faced the Jordanian 40th and 60th armoured brigades' M48 Pattons and M113 armoured personnel carriers. In addition, in the Hebron sector was the Jordanian 10th Armoured Regiment with Centurions.

Initially the Jordanians had planned Operation Tariq, which was a pincher attack to cut off the Jewish half of the contested city of Jerusalem. The reality was that Jordan's small army, comprising nine infantry brigades and two independent armoured brigades, was simply not strong enough to hold the armistice line with Israel, let alone seize West Jerusalem. Holding the latter as a bargaining chip was a sound strategy but the Jordanian armed forces were simply not up to the task of capturing it.

As a compromise 60th Armoured Brigade was deployed south to Hebron and the 40th moved from the northern area of the West Bank to the Jericho area. This was on the assumption that a Syrian armoured brigade would move in behind the 40th and that an Egyptian division would attack Beersheba via the Negev desert, although this did not happen.

In the face of Israeli attacks Jordanian troops were driven from Latrun but at Jenin they set up three co-ordinated defence lines supported by anti-tank guns. Also, in the third line

was a battalion of Jordanian Patton tanks that were dug in and could not be outflanked. Initially their defences held but the Israelis lured out the Pattons, which ran into the heavily gunned Super Shermans.

South of Jenin Brigadier General Rakan al-Jazi arrived with his 40th Armoured Brigade, having been on a wild goose chase to Jericho. He successfully caught the Israelis by surprise, hitting Brigadier General Elad Peled's armoured brigade. Up to sixty Jordanian Pattons opened fire and destroyed seventeen Super Shermans. When the Jordanians tried to follow up they were driven back by concentrated Israeli artillery and air strikes. Israeli tanks finally scattered the 40th Armoured at the Qabatiya crossroads. Some of the Jordanian tanks managed to reach the Damiya bridge and escape to the east bank of the river Jordan. Again the Israelis reaped a cruel harvest as they bombed and strafed withdrawing Jordanian troops, retreating down from the mountains of the West Bank into the Jordan Valley.

Prince Sharif Zaid Ben Shaker, commanding the 60th Armoured Brigade, lost half of his eighty tanks, largely to air attacks. He had a near miss, recalling: 'When you're strafed you have to jump out of your vehicle – I was in a Land Rover – and throw yourself in a ditch. They hit the wireless car behind me. They used a lot of napalm. A napalm bomb ricocheted on the asphalt near me, went about 200 yards and exploded. God was on my side.' All in all it was a disaster for the Jordanian armoured forces.

By the evening of 7 June 1967 the IDF's job was done, having captured East Jerusalem and the entire West Bank. The war against Jordan was over, but it had been a tough and bloody battle. The Jordanian Army suffered 700 dead and 2,500 wounded. The fighting cost the Israelis 550 killed and 2,400 wounded. While the Jordanians lost 179 tanks, they gave a very good account of themselves, knocking out 112 Israeli tanks.

King Hussein of Jordan went on the radio to acknowledge the performance of his armed forces and said, 'Our soldiers have defended every inch of our earth with their precious blood. It is not yet dry, but our country honours the stain ... If in the end you were not rewarded with glory, it was not because you lacked courage but because it was the will of God.' The truth was that his men had simply been outmatched by the Israeli tankers who had got the better of the Jordanian Centurions and Pattons.



Captured Jordanian M47 Patton tanks belonging to the 40th Armoured Brigade on the West Bank. Interestingly, these tanks have their turrets reversed and the gun barrels in the locked down position for transit. It is possible that there was a surprise ambush or air attack and they were abandoned by their crews before they went into action. Almost half of Israel's fatalities occurred on the Jordanian front. Once it was clear that the battle in the Sinai had been won the Israelis redeployed to face the Jordanians and the Syrians. The Jordanians were incapable of holding the West Bank and the Israelis rapidly captured Jericho and Nablus.



Israeli paratroops clearing Jordanian trenches during the battle of Ammunition Hill in East Jerusalem: thirty-six Israelis and sevety-one Jordanians were killed in the fighting. When the dust settled the Israelis were left in control of both West and East Jerusalem.



The buckled remains of an M48 – such tanks equipped the Jordanian 60th Armoured Brigade. Two Israeli Sherman battalions were tasked with capturing Jerusalem. When Jordanian tanks attempted to take Mount Scopus they lost three of their number to Israeli recoilless-rifle fire. The M48s attacked the Israelis along the Ramallah–Jerusalem road, but the 60th Armoured Brigade was cut off and by the time it had fought its way out the brigade only had six tanks left.



A Jordanian M52 self-propelled 105mm howitzer captured by the Israelis on the West Bank. The American-built M52, along with the M44 armed with a 155mm gun, utilised elements of the M41 light tank and entered service in 1954. Driving the vehicle was not easy as all the crew, including the driver, sat in the turret, which also had a very limited traverse. This particular vehicle seems to have taken a direct hit.



Jordanian infantry in an armoured half-track – confusingly the Jordanians used a lot of similar equipment to the Israelis, including the M3, Centurion and the Patton.



King Hussein of Jordan and his officers examine a knocked-out Centurion. At the start of the conflict the Jordanians had about ninety Centurions and 300 M47 and M48 Pattons. The Six Day War cost them 179 tanks, plus a number of M113s and M52s as well as 150 artillery pieces. The Israelis suffered 112 tanks disabled thanks to Jordanian tank fire and artillery.

## Chapter Seven

# 1967 The Six Day War: The Golan Heights

To the north Israel is bordered by Lebanon and Syria. During 1948–67 the Syrians constructed a ‘Maginot Line’ along their mutual border formed by the Golan Heights. They built numerous bunkers, tank pits and gun emplacements along the ridge that runs northwards from the Sea of Galilee and dominates the low-lying plains of Israel to the west. These defences were more than ten miles deep, protected by 265 guns. As in the case of Egypt and Jordan, the Israelis saw the Syrian military presence as a threat.

At the time of the Six Day War the Syrians had 65,000 men supported by 350 tanks, 300 artillery pieces and 200 anti-aircraft guns on this frontier. The plan was that, should the Israelis ever get through the Syrian defensive shield and threaten Damascus, then the armoured reserves would counter-attack and throw them back. As usual things were not as simple as they first appeared, for the Syrian Army, which included two armoured brigades, was greatly weakened by an ongoing purge following a failed coup.

In response to the Israelis’ surprise attacks on its air force the Syrians bombarded the Israeli settlements of Shear Yusuv and Tel Dan, then launched a dozen T-34s, supported by several hundred infantry, in an attack on 6 June. Three days later Colonel Albert Mendler’s armoured brigade pushed into Syria, with the job of tackling the Syrian 14th and 44th armoured brigades holding the strategically important Golan Heights. The Syrians also had several additional battalions of Second World War-vintage Panzer Mk IVs, T-34/85s and newer T-54s attached to the infantry formations in the region, plus some SU-100 anti-tank companies. Mendler’s command was equipped with one battalion of Centurions and one with a mix of M50 and M51 Shermans.

The mountain slopes from Kfar Szold were a serious natural obstacle that the Syrians fortified with minefields and anti-tank gun positions. This was the route that Mendler’s armoured brigade, followed by the Golani Brigade, would have to take. Eight unarmoured bulldozers were used to clear a path for the Israeli tanks up a 1,500ft-high ridge. Despite their assistance the Israeli tanks soon lost purchase and their tracks became clogged by boulders. To support his attack two other armoured brigades were brought up from the West Bank, plus five infantry brigades were also assigned to take part.

The Syrian bunkers were well protected and the Syrian Army knew that with Egypt and Jordan knocked out of the war they would be next in the firing line. In theory the Israeli frontal attack in broad daylight – up a steep slope toward well-prepared defensive positions – should have failed. The Syrian troops poured heavy fire into the advancing Israelis, knocking out three of the bulldozers, and Israeli tanks were also swiftly knocked out and their officers killed. However, the Israelis, enjoying unchallenged air power, forced their way up the slopes and did not stop, despite mounting losses.

Also the Syrians foolishly kept the bulk of their armoured forces at a safe distance in reserve. Their defences were relatively light, with limited numbers of dug-in tanks supporting the anti-tank guns. Once the fighting started the Syrians had no way of getting reinforcements up the escarpment without attracting air attack. Israeli fighter-bombers flew 1,077 ground-attack sorties against Syrian targets, more than against Egypt and Jordan.

The Syrians fought desperately to hold their positions at Tel Azaziyat, Tel Faq'r and Bourj Bravil. At Tel Faq'r the officers and their men stood firm and shot down the first wave of Israeli infantry, and only a few men of the subsequent second wave reached the wire and the minefield. The third wave, however, took the Israelis into the Syrian trenches, where for three hours both sides fought desperate hand-to-hand combat. Elsewhere the Syrians simply fled, especially after the Syrian government had prematurely announced the fall of Kuneitra, the 'capital' of the Golan Heights.

On the whole the Syrian troops, steeped in Soviet doctrine, lacked the flexibility and initiative required for fast-moving mechanised combat. Often the officers abandoned their men, and in two instances when the Israelis overran Syrian gun emplacements they found the unfortunate crews chained to their guns to prevent desertion. Despite the bitter hand-to-hand fighting in the Syrian trenches their defences were breached. By evening the Israelis were outside Kuneitra, some fifteen miles inside Syria and just forty miles short of Damascus. The Syrian Army withdrew, abandoning much of its equipment in the process.

An Israeli commander reported on 10 June 1967, 'We arrived almost without hindrance at the gates of Kuneitra ... All around us there were huge quantities of booty. Everything was in working order. Tanks with their engines still running, communication equipment still in operation had been abandoned. We captured Kuneitra without a fight.'

In fact a senior Israeli officer complained: 'It was very difficult to make contact with the retreating enemy. Whenever we arrived, they had withdrawn their forces and we could not make contact. We fired on a number of tanks only to discover that they had been deserted. Their crews had abandoned them.'

By this stage the Syrian General Staff knew that it was pointless to try and fight off the Israeli advance any further. They requested a ceasefire, which took effect that evening. Although the Israelis were left in possession of the strategic Golan Heights, their tank losses amounted to 160, whereas the Syrians had only lost seventy-three. Such was Syrian resistance that by the time the road junction at Kala had been captured the Sherman battalion was down to its last three tanks. Another victory had been secured, but at considerable loss to the Israeli tank corps.



An Israeli armoured half-track column moving up to attack the Syrians. Following the 1948 War of Independence the M3/M9 half-track series became the workhorse of Israeli mechanised forces. Note the locally installed .30 calibre machine-gun position beside the driver. The advance up the mountains cost the Israelis 160 tanks.





Syrian armour on the Golan Heights included old ex-German Panzer Mk IVs, such as these two, and StuG III assault guns. These Panzers were assigned to the independent tank battalions supporting the Syrian infantry brigades. The Israelis lost more tanks on the Golan than on either of the other two fronts. Syrian losses amounted to seventy-three T-34/85s, Panzer Mk IVs and T-54s, plus seven SU-100s and a few StuGs, from a total tank force of 250.



Captured Arab field guns put on display by the Israelis. The IDF captured in excess of 600 artillery pieces from the Egyptian, Jordanian and Syrian armies.



The Israelis also captured several hundred T-54s and T-55s and some of these were upgraded with a 105mm gun and reissued as the Ti-67. Some were subsequently passed on to Christian forces in Lebanon.



The fate of all the Arab armies in 1967. The smashed and charred remains of an Egyptian armoured column that includes T-34/85 and T-54/55 tanks, artillery and a dozen lorries.



Egyptian President Gamal Abdel Nasser surveys Israeli positions on the eastern bank of the Suez Canal. Israel's occupation of the Sinai sparked the War of Attrition during 1969–70, which saw constant warfare with shelling from the Egyptian side and retaliatory deep penetration raids by the Israelis. The intensity of the shelling forced the Israelis to dig in, creating a bunker and trench system along the canal. Egypt's defeat in 1967 was a festering sore that was to be avenged with the Egyptians' surprise attack on Israel in 1973.

## Chapter Eight

# 1973 Yom Kippur War: The Sinai

**A**t 1400 hours on 6 October 1973 the Arabs launched a surprise two-front assault on the Israelis under the codename of Operation Badr. Egyptian and Syrian armour swept all before them and the state of Israel teetered on the very brink of collapse. It was Yom Kippur, the Jewish fast day, when Israel was least prepared for war. The Israeli Defence Forces (IDF), suffering staggering losses, struggled desperately to stem the tide, and then a miracle happened – the Arab Blitzkrieg was killed in its tracks.

The Egyptians had around 1,650 T-54/55 tanks plus about 100 of the more modern T-62s; the Syrians had about 1,100 T54/55s and an unknown number of T-62s; between them they also had about 300 Second World War-vintage T-34s. As the battle progressed Iraq committed up to 250 T-54/55s and Jordan fielded about 100 Centurions. During the fighting the Soviet Union shipped in another 1,200 tanks to Egypt and Syria as battlefield replacements.

Following the 1967 Six Day War Israel had been left in control of the Egyptian Sinai desert, the Palestinian Gaza Strip, the Syrian Golan Heights and the Jordanian West Bank and East Jerusalem. The upshot was that for the first time Israel had some good natural defensive barriers to protect its borders. Six years later Egypt and Syria and their neighbours were determined to recapture this lost territory. By 1973 the Arab armies were armed to the teeth thanks to the Soviet Union, which had equipped them with T-54/62 tanks, MiG fighter jets, missiles and artillery. Holding the Egyptian, Jordanian and Syrian frontiers was the ‘Zahal’, or IDF, consisting of just 75,000 regulars and reservists.

The Israeli triumph during the Six Day War and the key role played by their armoured corps ensured its central role in post-war planning. After 1967 Israel upgraded its M48s to produce the Magach 3 and 5, followed by the M60 upgrade known as the Magach 6 and 7. Another M60 upgrade in the 1990s produced the Sabra. The Israelis captured several hundred repairable T-54s and T-55s and these were modified and reissued for Israeli use as the Ti-67 or Tiran. Similarly, captured T-62s were reissued as the T-62I.

The French-supplied AMX-13 proved to be wholly inadequate when they came up against the Egyptian T-54s and were relegated to a reconnaissance role. Likewise the Israeli M3 half-tracks, which had been in service since 1948, were now too vulnerable and were replaced by the American M113 tracked armoured personnel carrier – which the Israelis call the Zelda.

Israel’s 252nd Armoured Division, with around 280 tanks in three brigades, was deployed along the Suez Canal supported by three reserve armoured divisions. Across the canal, massing for the attack were ten Egyptian divisions supported by 1,600 tanks, all organised into two armies. The key Egyptian armoured formations were the 4th and 21st armoured divisions and the 3rd, 6th and 23rd mechanised divisions. They were supported

by various foreign allied contingents, which included Algerian and Libyan armoured brigades.

General Gonen was in charge of Israel's Southern Command, which included the 143rd, 162nd, and 252nd armoured divisions – in all, these mustered some nine armoured brigades. Once the Syrian front had been stabilised these forces were later reinforced by elements of the 146th and 440th composite divisions.

The Egyptian offensive was to take them over the canal between Kantara and Ismailia and to the south of Great Bitter and Little Bitter lakes in the Suez City area. These two separate crossings, by the Egyptian 2nd and 3rd armies respectively, divided by the two lakes immediately betrayed a fatal flaw that the Israelis would later capitalise on.

The armoured forces supporting the Egyptian 2nd Army comprised the 21st Armoured (with two tank brigades and one mechanised brigade) and the 23rd Mechanised (two mechanised brigades and one tank brigade) divisions. The armoured spearhead of the 3rd Army was the 4th Armoured and 6th Mechanised divisions, while the Egyptian GHQ had the 3rd Mechanised Division plus an independent tank brigade held in reserve.

The Egyptian assault opened with 2,000 guns firing a deluge of 100,500 shells at the Israeli defences known as the Bar-Lev Line. Then 150 MiG fighters attacked Israel's air bases, command posts and communications centres. When the Israeli Air Force tried to intervene it was met by a barrage of Soviet-supplied surface-to-air missiles (SAMs). The Israeli Air Force lost a huge number of planes, though only fifteen were actually downed in air-to-air combat.

During the early 1970s the Egyptians and Syrians, with Soviet assistance, constructed SAM networks even more formidable than those used by North Vietnam. The Arabs also deployed the SA-6 for the first time and it was this that posed the greatest threat to the Israeli Air Force. Being fully mobile, with unknown target-acquisition radar frequencies, the Israelis were reduced to the expedient of dropping Second World War-style 'chaff' to blind it. Crucially the Israelis greatly benefited from America's experiences in the Vietnam War. The SA-2 and SA-3, also used by the Egyptians, were relatively immobile and most of their codes had been broken. Nor did the SA-6 threat last long either.

The Egyptians' phased attack was designed first to cross the canal, neutralise the Israeli defences on the eastern bank, establish divisional bridgeheads to meet the inevitable Israeli counter-attacks and then link up the bridgeheads. Using high-pressure hosepipes the Egyptians breached the Israeli sand berm protecting the eastern bank and threw a series of pontoon bridges over the Suez Canal. Getting across the canal was a considerable feat and there were three reasons why it was achieved: firstly, choosing Yom Kippur (the Day of Atonement) which was one of the holiest days for the Jews; secondly, meticulous planning; and thirdly, the Egyptians had a much more sophisticated air defence system than in 1967, which for a while at least kept the Israeli Air Force at bay.

The crossing of the Suez Canal was the first time that the Soviets got to operationally test their PMP Floating Bridge, which had been developed to tackle Europe's wide rivers. This consisted of box-shaped pontoons carried on tracked vehicles – hydraulic arms

deployed the first pontoon, a vehicle would then drive onto the pontoon and deliver a second section and so on. The PMP was able to lay the pontoons at a rate of about fifteen feet a minute, so the Egyptian engineers were able to get over the canal in just under half an hour. Using old-style Second World War pontoon bridging would have taken the Egyptians at least two hours. The net result was that Egypt's tanks were soon rumbling over the canal at a faster rate than anticipated by Israeli intelligence. Within ten hours the Egyptians successfully deployed 500 tanks and their protective air defence system on the eastern bank. This was to be the high point of Egyptian military achievements.

The Egyptian 2nd and 3rd armies successfully swarmed across and fought off twenty-three desperate Israeli counter-attacks over the next two days. During Operation Badr the Egyptians got about 1,000 tanks over the Suez Canal; they left 330 tanks as an operational reserve behind on the west bank, while there was also a strategic reserve of another 250 tanks – though 120 of the latter were from the Presidential Guard and would only be released in the direst of emergencies.

The Egyptian 'tank-hunter' squads came over the Suez Canal lugging their RPGs and Sagger anti-tank missiles – these proved deadly to the Israeli armour. One Egyptian unit knocked out eight Israeli M60s defending the Bar-Lev line within the space of just ten minutes. Sergeant Ibrahim Abdel Monein el Masri was the most successful tank killer, accounting for twenty-six Israeli tanks, which gained him the Star of Sinai, Egypt's highest bravery award.

To protect the 'tank-hunter' teams from air attack, the Egyptians were equipped with the man-portable SAM launcher known as the SA-7 Grail. This five-foot-long (148cm) shoulder-fired weapon provided low-altitude air defence. The Israelis, though, were already familiar with the SA-7, as the Egyptians had employed it extensively against Israeli jets during the War of Attrition following the Six Day War. Israeli countermeasures greatly hampered its already poor kill ratio. Nonetheless, combined with the Egyptian Army's other air defence missiles, the SA-7 for a while helped stop the Israeli Air Force pressing home its attacks on the advancing Egyptian armoured columns.

The first Israeli counter-attacks by General Mendler's 252nd Armoured Ugda or division (consisting of the 14th, 401st Reserve and 460th Reserve Armoured brigades) were easily beaten off with heavy losses, thanks to the roaming Egyptian 'tank-hunter' squads. This was also in part due to a lack of mechanised infantry support that left the Israeli armour vulnerable. By the afternoon of 7 October 1973 the 252nd had lost some 200 of its 300 tanks. Counter-attacks on 8 October were also repulsed, with further heavy losses suffered by the 167th Armoured Division near Kantara, the Chinese Farm and Fridan. The division's three brigades were left with just 120 tanks by that night. General Sharon's 143rd Armoured Division then suffered smaller losses attacking the Chinese Farm defences on the 9th.

The Israelis moved a reserve armoured division into Sinai on 8 October, tasking the 190th Brigade to counter-attack toward the Egyptian pontoon bridges over the canal. They ran into determined Egyptian resistance using the latest anti-tank guided weapons including the Sagger and the RPG-7. The brigade was cut to pieces. In the meantime the

Israelis had defeated the Syrians by 9 October and easily fended off the supporting Iraqi and Jordanian tanks. This left the IDF free to re-deploy their tanks against the Egyptians.

By 10 October the Egyptians had 75,000 men supported by 800 tanks deployed in the Sinai. In light of the Syrian defeat on the Golan Heights both sides now prepared for the offensive. The Israelis decided to allow the Egyptians to move forward first and beyond the cover of their SAMs. The Egyptians struck on 14 October, but this was tank warfare that the Israelis excelled at: their gunners pinned down the Egyptian attackers while other forces struck the Egyptians in the flanks. By the end of the day the Egyptians had lost up to 300 tanks and the survivors were soon in full retreat. The following day the Israelis counter-attacked, crossing the canal in the Deversoir area of Great Bitter Lake and then drove back the Egyptian 2nd Army along the eastern bank.

On 15 October General Sharon, commanding three armoured and two parachute brigades, located a gap between the Egyptian 2nd and 3rd armies to the east of the Great Bitter Lake. He launched an armoured brigade in a diversionary attack against the Egyptian 2nd Army in front of Ismailia. He sent a second one in a southward loop to outflank them, with the aim of crossing the canal just north of Great Bitter Lake. This was achieved, though initially Sharon could only get forces across by pontoon ferry until bridges had been built the following day.

Disastrously for the Egyptians they had no contingency plan for the Israelis crossing the canal. They had expected the IDF to try and clear the east bank with encircling operations, not cross the canal itself. It took the Egyptians twenty-four hours to launch both the 2nd and 3rd corps into a counter-attack against the neck of the Israeli penetration just north-east of the Great Bitter Lake, in what became known as the 'Battle of Chinese Farm'. The fighting raged throughout the night of 16/17 October with heavy losses on both sides. By the middle of the 17th Israeli armour was pouring over the canal, sealing the fate of those Egyptian forces on the eastern bank.

By the time of the first ceasefire the IDF had secured a foothold on the far bank of Great Bitter and Little Bitter lakes, i.e. west of the Suez Canal. At the same time the Egyptian 2nd Army held a swathe of territory east of the Suez Canal between Port Said to the north and Ismailia to the south. South of the Lower Bitter Lake and beyond Suez City the Egyptian 3rd Army held another strip. Despite the ceasefire both sides sought to improve their positions. Crucially the IDF not only enlarged their bridgehead west of the lakes but also drove south to Suez City and beyond to Adabiya on the Gulf of Suez. Despite Egyptian counter-attacks this move trapped 20,000 men of the Egyptian 3rd Army, cutting them off from drinking water, food and ammunition supplies. In the area west of the canal the Egyptians had dug in many of their elderly T-34 tanks hull-down in the sand – in the space of half a mile eighteen were destroyed in their pits by the Israeli Air Force.

Having trapped the Egyptian 3rd Army, Israel finally agreed to a ceasefire on 24 October. This left the Israelis occupying 600 square miles of Egyptian soil west of the canal, encircling the 3rd Army and holding 9,000 prisoners. The ferocity of the Yom Kippur War is reflected in the casualties. Egyptian and Syrian forces suffered 19,000

killed and 51,000 wounded. The Israelis lost 606 officers and 6,900 men. Although Yom Kippur ended in a resounding Israeli victory, the 'Great Crossing', as the Egyptians dubbed it, was a major psychological victory for the Arabs. It had shown them that they could take on the hitherto-invincible IDF and win.



Newly delivered Egyptian BM-23 mobile rocket launchers on display. By the early 1970s the Arab armies' enormous losses during the Six Day War had been made good by Moscow.





The Israelis created a defensive chain along the Suez Canal called the Bar-Lev Line. This consisted of thirty strongpoints or Maozim running from the Mediterranean to the Gulf of Suez – a distance of 100 miles or 160 kilometres. Some five miles behind this was another network of strongholds known as Taozim. Partly in response to these defences the Egyptians conducted regular shelling and commando raids, which resulted in the War of Attrition. At the time of the Egyptian offensive in 1973 only half the Maozim were fully manned – the rest were either mothballed or had small observation teams.



In the top shot an Israeli M48 Magach is taking on ammunition somewhere in Sinai, having already expended a large number of rounds. This was the most numerous tank type deployed by the IDF on the Sinai front. The Israeli 252nd Armoured Division deployed in the Sinai had the task of initially holding any Egyptian attack; some of its tank companies were forward deployed along the Bar-Lev Line, such as the one in the bottom photo. Consumption of ammunition by the IDF armoured corps in 1973 almost brought it to breaking point.



Operation Badr – breaching the defences along the Suez Canal – was a major feat for the Egyptian Army. Within ten hours of the assault opening, the Egyptian engineers had blown sixty holes in the sand ramparts, built ten pontoon bridges and set up fifty ferries. This enabled the Egyptians to get 500 tanks across, along with their supporting anti-tank and anti-aircraft missiles. These two photos show lorries crossing.



Egyptian infantry making for a breach in the sand berm. The gaps were created using 450 high-pressure hoses imported from Britain and West Germany. South of El Qantara, at El Ballah, the canal forms two channels: one was already in Egyptian hands, so it provided an ideal training ground.



Egyptian armour rumbling across the Suez Canal. The image is rather indistinct but the vehicle appears to be a Soviet-supplied BTR-50 or MT-LB armoured personnel carrier.



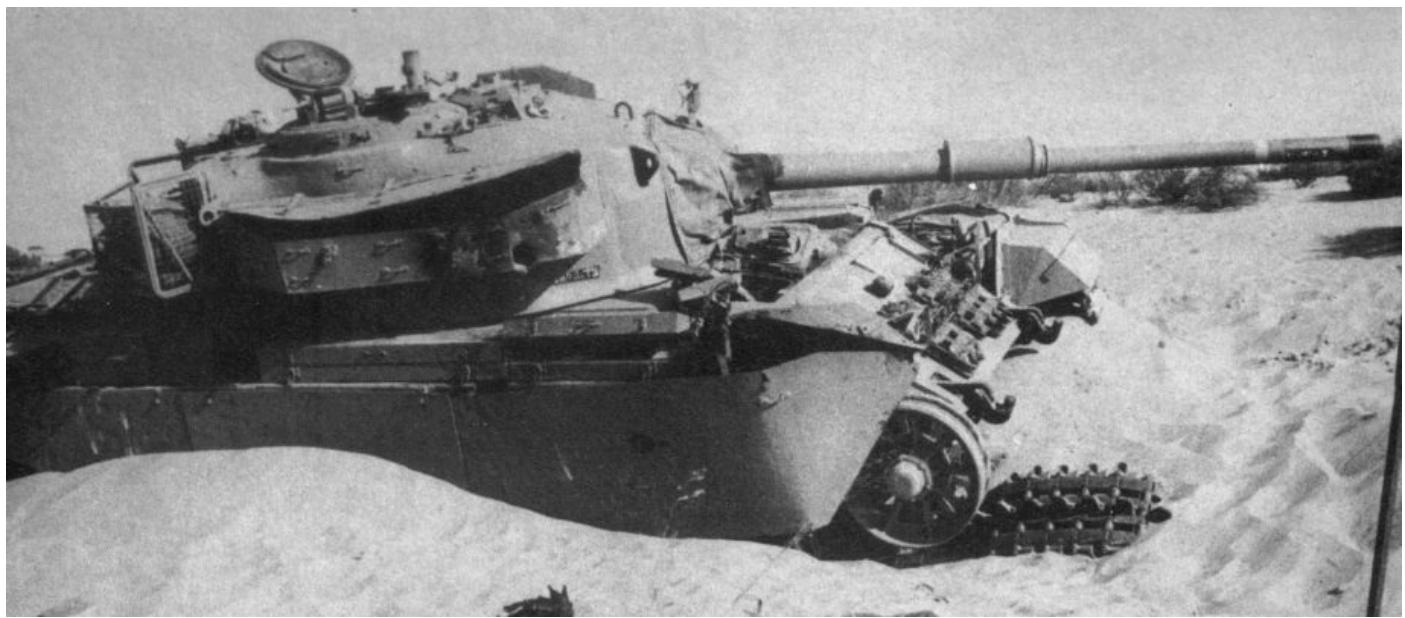


With the Egyptian tanks came a protective air defence screen provided by the SA-6, seen here in both the tracked and wheeled mounted versions. The former, known by its NATO code as the Gainful, is mounted on the PT-76 amphibious light tank chassis. This was given credit for destroying over one-third of the Israeli aircraft lost in 1973.



A much-larger surface-to-air missile deployed by the Egyptians was the SA-2. Crucially, the Israelis greatly benefited from America's experiences in the Vietnam War. The SA-2 and SA-3 were relatively immobile and most of their codes had been broken, making them vulnerable to counter-attack.





Two views of the same knocked-out Israeli Sho't. It is evident that an armoured-piercing round went through the storage bin on the turret. Of the 290 Israeli tanks in the Sinai on 6 October 1973, 150 were put out of action within the first thirty-six hours. According to the Egyptians their RPGs and Sagger missiles accounted for 70 per cent of Israeli tank losses.



An Israeli M60 destroyed during one of the ill-fated initial counter-attacks – a victim of the Egyptian 'tank-hunter' groups. Note how the tracks have melted in the heat of the blaze.



Egyptian troops posing with a captured M48. The bravery of the three Israeli armoured brigades in the first few days of the Egyptian offensive gained Israel time to mobilise its reserves.





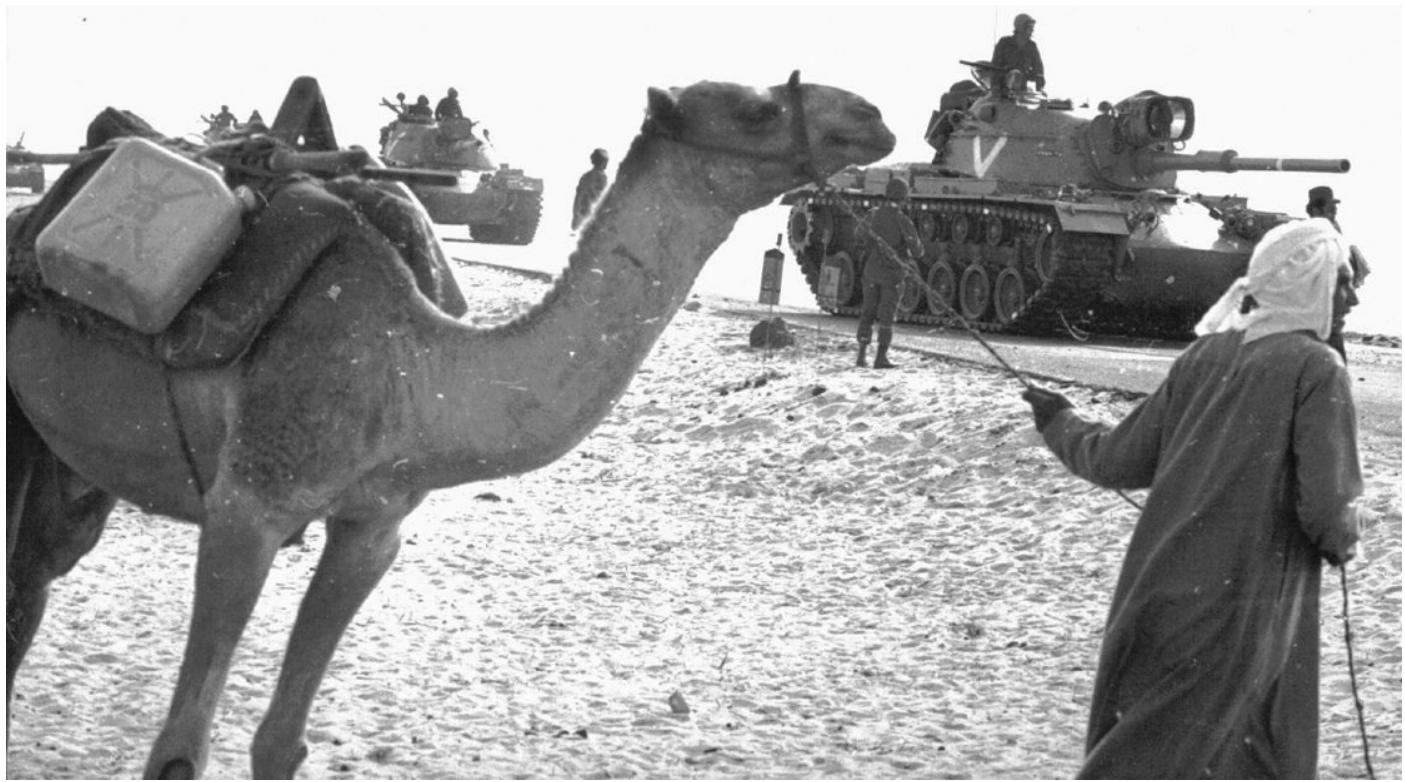
The smashed and derelict remains of the Egyptian Army in the Sinai following the successful Israeli counter-attack. The first two pictures show abandoned T-62 tanks, while in the foreground of the third is an overturned BTR APC.



The highly daring Operation Gazelle saw Israeli armour cross the Suez Canal to attack the Egyptian rear. This photo shows an M48 negotiating its way over a fairly narrow bridge.



A column of Israeli M60 Magachs moving across the desert toward the Suez Canal. Once over the canal the tanks' key role was to locate and destroy Egyptian surface-to-air missile sites. Once this was achieved the Israeli Air Force had free reign over Egyptian rear areas, thereby preventing them from bringing up reinforcements or indeed retreating.



The incongruities of war: an Egyptian Bedouin and his camel watch a column of IDF M48s. Having successfully surrounded the Egyptian 3rd Army the Israelis failed to take Suez City. Egyptian troops fighting for their home soil refused to relinquish the city. During the Yom Kippur War, of the 2,000 tanks deployed by the IDF half were damaged, with 400 knocked out and 600 returned to service. From a total Arab tank force of 4,480 they lost 2,250.



An abandoned Egyptian SAM, the scorch marks indicate that it was hit by an Israeli air strike. Once the Egyptian air defence system was overcome Israeli pilots were able to tank-hunt at will, roaming the battlefield looking for targets of opportunity.

## Chapter Nine

# 1973 Yom Kippur War: The Golan Heights

Israeli defence minister Moshe Dayan was not blind to the Arabs' military buildup, both in the Sinai and on the Golan Heights, during the early 1970s. He inspected the IDF forces on the Golan on 26 September 1973 and warned them, 'Stationed along the Syrian border are hundreds of Syrian tanks and cannon within effective range, as well as an anti-aircraft system of a density similar to that of the Egyptians' along the Suez Canal.' While Dayan put a brave face on things he also put the army on alert and quietly reinforced the single, under-strength armoured brigade on the Golan, by redeploying the normal garrison unit, the 7th Armoured Brigade, which had been drawn back to armoured HQ at Beersheba.

It has been estimated that the first wave of the Syrian assault involved up to 700 tanks: with 300 striking toward Kuneitra in the middle of the Golan and the other 400 striking up the road from Sheikh Miskin to Rafid to the south of Kuneitra; they were supported by three infantry divisions. The intention was that the northern attack would cut the IDF's Golan defences in half by thrusting down the main Kuneitra–Naffak road. The southern attack would then link up at Naffak as well as pushing south to El Al. In principle it was a very sound plan.

The Golan was the fulcrum on which Israel's fate rested – if the IDF could not achieve victory there then they would not have the resources to redeploy for a counter-attack against the Egyptians in the Sinai. While the latter offered strategic depth of 125 miles, in which the IDF could conduct a fighting withdrawal, the IDF faced defeat if ousted from the Golan. From the frontline of the IDF's forward defensive positions facing east to the cliffs overlooking northern Israel the Heights are just seventeen miles deep. The IDF had no option but to stand and fight where they stood. The only advantage the IDF had on the Golan was they were masters of tank warfare and expert gunners. The question was whether the Israelis would be able to knock out the Syrian tanks fast enough to stop their positions being overrun.

Sitting on the Golan were two Israeli tank brigades, one of them only at three-quarters strength. To the north, defending the narrowest sector, was the 7th Armoured Brigade with about 100 tanks. The central and southern sectors from Kuneitra to the Benot Jacob Bridge was held by the Shoam Brigade with around seventy-five tanks. The brigade faced odds of five-to-one and in some places even as high as twelve-to-one.

After the 1967 war Israel had occupied and improved the Syrians' existing triple defence lines that it had overrun; behind these lay sixteen fortified Jewish settlements. It would take at least thirty hours to mobilise reserves and get them up the road from Rosh Pina south-west of the Benot Jacob Bridge over the river Jordan and up the ascent to the

Golan. It is not good tank country as visibility is poor. Mount Hermon is the only place that gives a clear view of the Golan and all the way to Damascus. From there the Israelis were able to watch the Syrian tanks marshalling on the plain below. Mount Hermon would soon fall to a Syrian helicopter commando assault. In the meantime the Syrian tanks were dug in to convince the IDF that they were adopting a purely defensive posture.

West of the Golan Heights Israel's Northern Command under General Hofi was made up of the 146th armoured (9th, 19th, 20th and 70th armoured brigades) and 240th armoured (79th and 17th armoured brigades) divisions plus the 36th Mechanised Division (7th and 188th armoured brigades).

Syrian and allied armoured forces facing the Golan Heights in October 1973, on paper at least, were quite formidable looking. They consisted of the Syrian 1st and 3rd armoured divisions, each comprising two tank brigades and a mechanised brigade. In addition the 68th, 47th and 46th tank brigades supported the three Syrian infantry divisions allocated to the attack.

Arab allied units consisted of the Iraqi 3rd Armoured Division with the 6th and 12th tank brigades and the 8th Mechanised Brigade, along with the Jordanian 3rd Armoured Division; the latter fielded the 40th Armoured Brigade with the 2nd and 4th armoured regiments, the 1st Mechanised Battalion and the 7th Self-propelled Artillery Regiment, and the 92nd Armoured Brigade with the 12th and 13th armoured regiments, 3rd Mechanised Battalion and the 17th Self-propelled Artillery Regiment. Morocco also provided a mechanised brigade and Saudi Arabia a mechanised regiment.

At 1400 hours on 6 October 1973 Syria threw its armoured and infantry divisions, equipped with 1,200 tanks, into an operation that was expected to drive the Israelis from the Golan Heights in the space of just two days. To fend them off were the two Israeli brigades with 180 tanks. These units brought precious time while Israeli reinforcements were rushed to the front. What followed was a brutal slogging match as the two sides caught each other head on. Remarkably two damaged Israeli Centurions held off about 150 Syrian T-55/T-62 tanks and during a thirty-hour tank engagement knocked out over sixty tanks.

During the fighting in the 'Valley of Tears' the destruction was terrible. The Syrian 7th Division and the Assad Republican Guard lost 260 tanks, along with well over 200 BMP armoured personnel carriers, BRDM light armoured cars and bridge-layers. Of the Israelis' 105 runners from the 7th Armoured Brigade they had just seven operational tanks. Although the Syrians broke through they lost 867 tanks to superior Israeli tactics and the timely arrival of reinforcements.

By 9 October the Israelis had triumphed against the Syrians. The Iraqi and Jordanian armour did not intervene until the second week of fighting; the Israelis broke up a counter-attack by the Iraqi 3rd Armoured Division on 13 October; the latter performed fairly poorly, losing 140 tanks to the Israelis.

Three days later the 40th Armoured Brigade from the Jordanian 3rd Armoured Division ran into the Israelis and after losing twenty tanks in two days of fighting took no further

part in the battle. When the fighting on the Golan finally came to the end it had cost the Syrians and their allies a total of 1,200 tanks.

The Israeli Air Force learned the hard way in 1973 that before all else they must neutralise enemy radar and SAM sites. In eighteen days of fighting the Israeli Air Force suffered, by its usual standards, appalling casualties – losing over 25 per cent of its combat aircraft, mainly to radar-guided anti-aircraft artillery rather than missiles (the Arabs accounted for 114 Israeli aircraft, of which the bulk were as a result of ground fire). For any other air force in the region this would have been crippling.

Just as importantly Egypt's Soviet-supplied wired-guided anti-tank missiles had shown how vulnerable tanks could be to tank-hunter groups. The men of the Israeli armoured corps paid a heavy price for their victory: 1,450 tank crew were killed in the Sinai campaign with another 3,143 wounded in action. The Israelis lost some 400 tanks, though many were later repaired. This led the Israelis to develop the Blazer reactive armour system (explosive blocks fitted to the outside of their tanks) and composite armour to protect against the Arabs new anti-tank weapons.

The Israeli armoured corps lost almost 40 per cent of its southern armoured groups in the first two days of the war, which highlighted the need for vital infantry support and ultimately led to the Merkava main battle tank being fitted with a rear troop bay. One of the most glaring deficiencies of the Israeli armour was their lack of night-vision equipment (the Egyptian and Syrian tanks had infra-red, including the British made Xenon infra-red projector, giving them a serious advantage over the Israelis during the many night encounters) and after 1973 they began acquiring image-intensification and thermal-imaging night-vision systems.

On the eve of the Yom Kippur war the Israelis fielded 540 M48A3 (with the upgraded 105mm gun) and M60A1 tanks. By the end of the fighting they only had around 200 still operational. This was because of severe vulnerability caused by the hydraulic fluid at the front of the turret, which proved to be a major problem while fighting the Egyptians in the Sinai. The rapid turret traverse system, if hit, tended to spray the flammable hydraulic fluid into the tank. The losses were replaced with the Magach 5 (M48A5) and Magach 6 (M60) upgraded during the 1970s.

Under the codename Operation Nickle Grass America airlifted vital military supplies to the Israelis during the bitter and desperate fighting. Key amongst these was artillery rounds and TOW and Maverick anti-tank missiles. According to the US Defence Intelligence Agency, the latter accounted for most of the Israeli tank kills. Fighter replacements, after the heavy losses to the Egyptian air defences, totalling 76 aircraft were welcome. It was this re-supply that emboldened the IDF to break through Egyptian defences on the west side of the canal. In contrast, American tank replacements were not in sufficient numbers to have any real bearing on the fighting. The airlift delivered just twenty-nine tanks, but only four arrived before the ceasefire on 22 October 1973. Another twenty-five were delivered but this was after hostilities had stopped.



President Assad of Syria visiting the trenches on the Golan Heights facing Israel. On 6 October 1973 the Syrians wanted to attack at dawn when the sun would be behind them; the Egyptians wanted late afternoon for the same reasons – in the event they compromised at 1400 hours.



This Israeli jeep-mounted recoilless gun is engaging Syrian targets on the Golan Heights. For the first few days limited numbers of Israeli tanks and anti-tank units faced battalions, brigades and even divisions of Syrian armour.



A knocked-out Israeli M60 Magach – the M60A1 was the most modern main battle tank in the IDF armoury, but, as demonstrated by this one, they did prove vulnerable and had to be extensively modified after the war. The M60 Magach 6 and 7 models would go on to become the mainstay of the IDF's armoured corps for many years.



Israeli Sho'ts supported by armoured infantry firing on Syrian tanks. The Syrians planned to clear the Golan Heights in two to three days – instead Israeli tactical and technical expertise wrought a crippling toll on the attacking Syrian armour.



Israelis examining a burnt-out T-54 tank. The 7th Armoured Brigade alone accounted for over 250 Syrian tanks in the 'Valley of Tears' between Hermonit and Kuneitra.





To supplement their artillery the Israelis used batteries of former Soviet Katyusha rocket launchers. During the Yom Kippur War the IDF had 570 artillery pieces with a calibre larger than 100mm – the Arabs had four times that number.



The IDF deployed about 250 Super Shermans – as the fighting developed the Israelis had to draw on tanks held in strategic reserve. Although old, the Shermans proved effective on both the Golan Heights and in the Sinai.



An M3 command vehicle rumbles past the watchful eye of a Sho't. A veteran design from the Second World War, the M3 was the most numerous armoured personnel carrier with the IDF. Many Israeli soldiers preferred it to the confined and often baking interior of the tracked Zelda M113 APC.



A burned-out column of Syrian trucks and artillery that were probably caught by the Israeli Air Force.



This Israeli casualty is being moved to the rear for treatment. The Israeli armoured corps suffered heavily in 1973 with 1,450 crewmen killed and another 3,143 wounded.



An IDF self-propelled gun firing in support of the fighting in the 'Valley of Tears'. The vast pile of spent shell cases are testimony to the volume of fire the Israelis laid down on the Syrian Army.



## Chapter Ten

# 1982 The Invasion of Lebanon

Israeli planning for the invasion of Lebanon to counter the Palestinian Liberation Organisation (PLO) started in November 1981. The IDF intended to deploy some six and a half divisions, with about 75,000 men, 1,240 tanks and 1,500 armoured personnel carriers. Forces were also kept on the Golan Heights to deter the Syrians from attacking the base of the IDF advance. Notably making its debut was the Israeli-built Merkava tank. For the attack on Lebanon the Israelis deployed 180 Merkava Mk Is. These were to perform well, unlike the accompanying Zeldas or M113 armoured personnel carriers. Also just before the invasion Israel's Magach 6 tanks were fitted with explosive reactive armour, known as ERA.

To complicate matters for the Israeli planners the Syrian Army had about 30,000 men with 712 tanks deployed in two main areas of Lebanon. In the strategic Bekaa Valley running down the eastern side of the country was the Syrian 1st Armoured Division, comprising the 91st and 76th tank brigades with 160 tanks each, plus the 58th Mechanised Brigade supported by forty tanks with the 62nd Independent Brigade with another thirty-two tanks also in the area. In the Shouf mountains southeast of the Lebanese capital Beirut, and in the Beirut area itself, was the 68th Tank Brigade with 160 tanks and two infantry brigades supported by sixty-four tanks guarding the important and vulnerable Beirut–Damascus highway. All in all this was a formidable-looking tank force that the Israelis would have preferred not to tangle with.

Israel's strategy for Operation Peace for Galilee was to push its tanks up the Lebanese coast, bypassing the major PLO centres and cutting off their escape route through the Bekaa. Only then could the PLO be destroyed piecemeal. On the central front the old Crusader fortress of Beaufort Castle was an important initial objective. Overlooking southern Lebanon and northern Israel it had been a PLO artillery observation post for years.

To fend off the IDF the PLO had about eighty T-34/54/55 tanks, plus 130mm and 155mm artillery, heavy mortars and BM-21 rocket launchers. The PLO had approximately 14,000 men altogether: 6,000 in Beirut, Ba'abda and Damour; 1,500 in Sidon; 1,000 between Sidon and Tyre; 1,500 in Tyre; 1,000 stretching from Nabatiyeh to Beaufort Castle; 2,000 in Fatahland; and 1,000 in the UNIFIL zone in the very south. Its forces were organised into three conventional formations (each of 2,000–2,500): the Yarmouk Brigade stationed along the coastal strip; the Kastel Brigade in the south; and the Karameh Brigade on the eastern slopes of Mount Hermon, in an area the Israelis called Fatahland.

Lebanon achieved independence from France in 1943. Just five years later, with the creation of the state of Israel, 400,000 Palestinian refugees poured north from Israel and crossed into southern Lebanon. For twenty years they lived in refugee camps, dreaming of an independent state of Palestine. Then in 1968 Beirut became the headquarters of the

PLO, the umbrella organisation for the different political factions dedicated to the overthrow of Israel. The PLO set up bases in southern Lebanon to carry out cross-border terror operations in Israel. Largely unwillingly, the Lebanese were dragged into the Arab-Israeli conflict.

Lebanon was then split along factional lines during the civil war of 1975–6. The PLO was unable to keep out of this internecine warfare and was soon fighting Lebanese Christian militias. In 1975, at the height of the civil war, Syria despatched the ‘Saiqa’ (Syrian-sponsored Palestinian Liberation Organisation faction) and the Palestinian Liberation Army to fight alongside the Muslim forces. In turn the Christians supported the Syrian–Lebanese peace plan, but the PLO refused to cooperate. Syria sent in 40,000 troops, sanctioned by the Arab League, to help the Christians and prevent the PLO establishing a state within Lebanon capable of resisting Syrian aspirations. The Syrians consolidated their presence in Beirut and the Bekaa Valley. After the 1979 Camp David accord between Israel and Egypt, Syria’s relations with the PLO improved and the Syrians withdrew from the coast. Despite this, by 1981 Syria still controlled two-thirds of Lebanon and refused to leave.

On 6 June 1982 Israel launched Operation Peace for Galilee, invading Lebanon along a sixty-three-mile front. Israel was clearly hoping for a repeat of the Six Day War. It was only designed to force the 14,000-strong PLO out of southern Lebanon, but at the same time it seemed highly unlikely that confrontation with the Syrians deployed in the Bekaa, Beirut, the Shouf mountains and along the Beirut–Damascus highway could be avoided. The Nabatiyah area was found to contain a major PLO training camp, with a large number of international terrorists who were undergoing training (in total Israel rounded up about 1,800 terrorists in southern Lebanon from twenty-six countries).

Inevitably the Israeli advance was soon threatening Syria’s position in the Bekaa, for Israel planned to sever the Beirut–Damascus highway, which would cut the Syrian forces off. Seizing the initiative, a Syrian brigade at Bin Zehalta ambushed the Israeli column assigned this task. The only way to extricate it was with air cover, but this could not be guaranteed because of the nearby Syrian SAM defences in the Bekaa. It was now clear the situation would lead to an escalation in the fighting with Syria.

Indeed Syrian President Assad’s forces in the Lebanon were facing a crisis. War had not been officially declared, but those units in Beirut were in danger of being isolated. Syria was suddenly faced with the prospect of losing her foothold in Lebanon altogether. Assad’s brother, Rifaat, urged him to send more SAMs to Zahle in the Bekaa. The defence minister, General Mustafa Tlas, opposed this, as his intelligence showed that the Israelis could probably knock them out. Extra SA-2, SA-3 and SA-6 batteries were despatched regardless. They also had some 700 pieces of anti-aircraft artillery (AAA) in the valley. The main battle for the Bekaa took place in the air.

On Wednesday 9 June 1982 the IAF elimination of the Syrian SAMs at Zahle was authorised. The targets consisted of nineteen SA-6 batteries deployed at several locations along the Bekaa Valley, an area some twenty-five miles by ten miles, flanked by ridges up to 6,500 feet high. At 1400 hours the IAF executed a well co-ordinated attack on the

Syrian missile sites with a two-wave air strike, comprising ninety-six aircraft followed by another ninety-two.

In the course of this raid, which reportedly took just ten minutes, the IAF destroyed seventeen of the SA-6 sites, as well as several supporting SA-2 and SA-3 sites, without the loss of a single Israeli aircraft.

Those missile batteries that escaped the initial destruction were attacked by the second wave of IAF jets, using smart bombs and conventional explosives. There was some danger from the AAA guns deployed in the valley, but they were under Israeli artillery fire and proved useless. The Syrians added to the increasing chaos by releasing smoke screens in a futile bid to hide their positions. In fact the smoke simply helped the Israelis pinpoint their targets more easily. The two surviving SA-6 sites, as well as some additional batteries that were replenished with new equipment overnight, were destroyed by the IAF the following day.

Now in a desperate effort to save the day the Syrians committed large numbers of interceptors. The day before, they had started to send out big groups of up to twelve jets looking for the smaller Israeli formations. The result was a huge confused air battle involving some 200 jets in a 2,500km<sup>2</sup> area. What occurred was not a swirling array of multiple dogfights in the classic sense like the Battle of Britain, but a series of independent encounters. At its peak ninety IAF jets and sixty SAF jets were simultaneously airborne.

On the ground in the Bekaa Valley it was the Syrian armoured forces that bore the brunt of the Israeli assault and suffered as a result. Syrian tank crews performed far better than in 1967 and 1973 – this time often fighting with great tenacity and skill when standing their ground. On day five the Syrian 1st Armoured Division was destroyed around Lake Qaraoun at the southern end of the valley. On the 11th the Syrian 3rd Armoured Division also suffered a bloody nose in the Bekaa. Merkavas of the 7th Armoured Brigade came up against T-72Ms of the Syrian 3rd Armoured Division's 82nd Armoured Brigade in the Bekaa that day and within moments had knocked out nine.

The Syrian 85th Mechanised Brigade, equipped with T-55 tanks and BTR-60 and BMP APCs, attacked Israeli armour south of Beirut on 14 June. The tanks closed to within 100 and even 50 metres and fought stubbornly until all their equipment was lost. Whilst this proved the Syrians' ability to stand and fight, squandering their forces did not say much for their leadership or tactics.

Although many of the Syrian Army's units had been severely battered in the fierce engagements with the IDF, the bulk of them in the Bekaa were able to withdraw to the vicinity of the Damascus highway. Nonetheless the Syrian armoured corps was unable to counter the Israeli tanks and the Syrian tank forces had to pass their anti-tank mission over to Syrian anti-tank helicopters and commando forces.

A ceasefire with the Syrians, including the PLO, came into effect on 12 June. Sporadic fighting continued in the Bekaa and on 22 June SAM sites were again attacked. At Damour the IDF captured 5,000 tons of arms and ammunition, including SA-9 missiles.

By the end of June the IDF had collected 4,170 tons of ammunition, 764 vehicles, 26,900 light weapons and 424 heavy weapons. Somewhat ironically, in August Israel sold \$50 million worth of captured Syrian and PLO arms and ammunition to Iran.

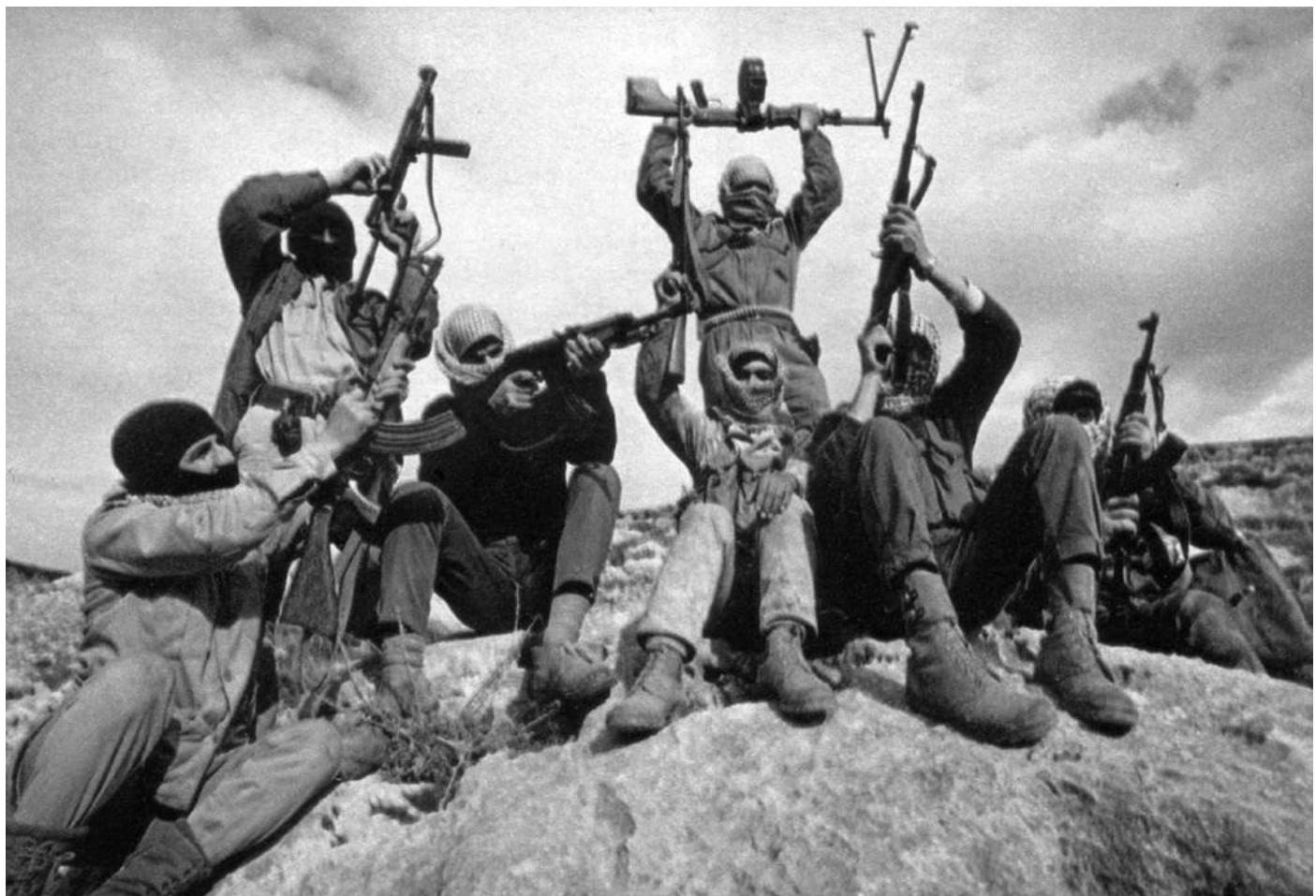
The IDF besieged the PLO in Beirut until early August, when they finally agreed to quit the city; some 14,398 Palestinian fighters and Syrian soldiers withdrew. Syrian Army losses are believed to have been up to 1,200 dead, 3,000 wounded, 296 prisoners and almost 500 armoured vehicles. The PLO lost 1,500 dead, an unknown number of wounded and, more importantly, their entire infrastructure (including their archives) in Lebanon. Operation Peace for Galilee cost the IDF 368 dead and 2,383 wounded in six weeks of fighting.

The Syrian Army caught up in the fighting in Lebanon lost 200 T-62s, 125 T-54/55s, nine T-72s and 140 APCs. Afterwards Syria went on a massive armoured-vehicle buying spree. In the early 1980s the Syrians ordered 800 BMP-1s as well as large numbers of T-72 MBTs and BTR-80 APCs. Subsequently, in the early 1990s the Syrians ordered 252 T-72 tanks from Czechoslovakia and another 350 from Russia. Israel meantime had gained a security buffer in southern Lebanon to supplement the Golan Heights defences.





In 1982 the Israelis' home-grown Merkava tank had its baptism of fire. It represents the pinnacle of Israel's armoured-warfare experience and its key features are a low silhouette and high gun elevation. The Merkava Mk I first came into service in 1979 when the 7th Armoured Brigade received forty of them. The numbers produced indicated that it had a specific role rather than simply taking over from the successful Centurion and Patton. From the design of the Merkava it was clear that it was intended for use on the Golan Heights rather than the empty sands of the Sinai desert.



In what became known as 'Black September', during 1970–1 the Palestinian Liberation Organisation was forcibly expelled from Jordan for undermining the authority of King Hussein. For the next decade PLO fighters worked to create a new 'state within a state' in southern Lebanon, from where they continually attacked Israeli territory.



The presence of around 20,000 PLO fighters based in southern Lebanon sparked Israeli invasions in 1978 and again in 1982. In the first invasion some 25,000 Israeli troops occupied southern Lebanon south of the Litani river. Afterwards the Israelis handed the area over to their allies in the Christian South Lebanon Army militia.



A South Lebanon Army Tiran – these were Israeli-supplied T-54/55s captured in 1967 and 1973 that had had the old Soviet 100mm D-10 gun replaced with a Royal Ordnance 105mm L7.



A United Nations Interim Force in Lebanon (UNIFIL) roadblock in southern Lebanon in 1981. UNIFIL was created three years earlier to ensure the Israeli withdrawal following the IDF incursion with Operation Litani.



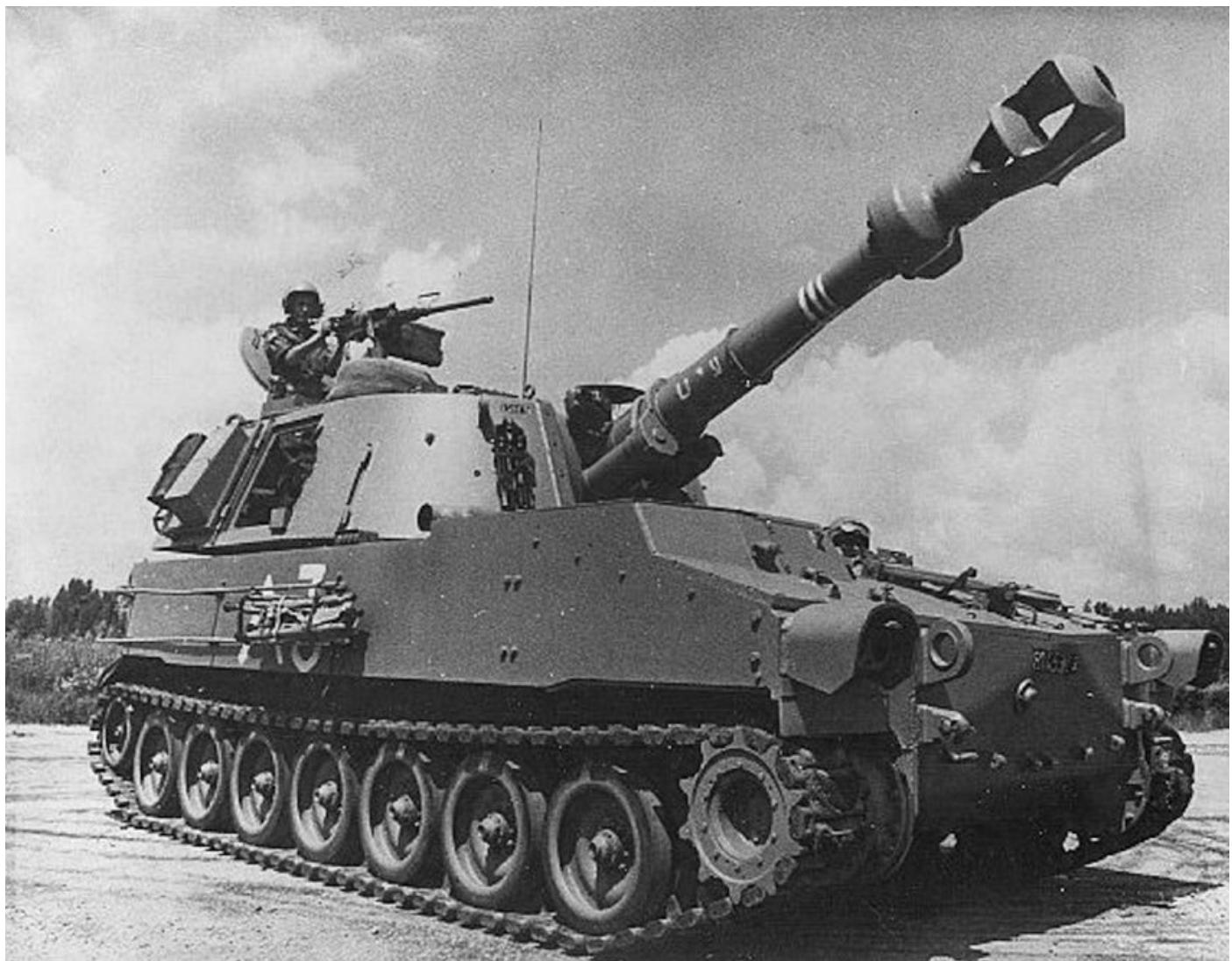
An Automitrailleuse Légère AML H-90 (right) of the ineffectual Lebanese Army. This French-built armoured car for export purposes was known as the Panhard AML 245 and Lebanon received seventy of them. After being torn apart by a bitter civil war during the 1970s, Lebanon was ruled by a series of regionally based heavily armed militias who paid little heed to the government in Beirut.



Israeli jets conducted pinpoint air strikes against PLO targets in Beirut. On 3 June 1982 Palestinian terrorists tried to kill the Israeli ambassador to London, Shlomo Argov. He was critically wounded and left disabled. The following day the Israeli Air Force bombed the PLO training camp at Bourg el-Barajna and the Beirut sports stadium. Israeli intelligence had long suspected that the PLO was using it as a base and arms storage facility.



The PLO had at most about sixty T-34/85s; by 1982 this Second World War veteran had little value except in a static pillbox role. Even then the Israeli Air Force silenced most of the PLO tank, artillery and rocket-launcher positions before the IDF rolled over the border on 6 June 1982.



M109 155mm self-propelled howitzers such as these went into action against the Syrian Army on the eastern front and were deployed to lay siege to the PLO trapped in Beirut.



Israeli Zelda M113 armoured personnel carriers in Lebanon. These were vulnerable to the *Ashbal* or 'RPG kids' employed by the PLO. The *Ashbal* would dash from cover, fire and then dash back, often relying on IDF self-restraint.



During the 1982 invasion Zeldas were landed along the Lebanese coast at Tyre, Sidon and Damour as part of a supporting amphibious assault that included 400 vehicles. These particular M113s in fact belong to the Lebanese Army.



The Syrian armed forces had improved considerably since the Yom Kippur War of 1973. The T-72 at the time was a state-of-the-art battle tank equipping the Syrian Army – this particular example belongs to the Iraq Army. The T-72 had replaced the T-62 as the spearhead main battle tank, though the Syrians only had about 250, plus 900 T-62s and 1,500 T-54/55s, with about 1,600 armoured personnel carriers.



A knocked-out Syrian tank on the Golan Heights; in 1982 the IDF claimed to have captured or destroyed 500 armoured vehicles, including nine T-72s. Israeli Major General Avigdor Ben Gal noted: 'To our great satisfaction, we saw that the T-72s burn just like any other tank.' The Syrians did all they could to stop the Israelis from removing the T-72s left in no man's land, but the IDF managed to salvage at least one.



An IDF Zelda on the streets of southern Beirut. Following the invasion of Lebanon Israeli tanks besieged the PLO in Beirut for nearly two months until early August 1982; over 14,000 Palestinian fighters were eventually evacuated.



'Hearts and minds' – an IDF soldier with a young Lebanese boy. Note the armoured half-track behind them.



This photo shows just a few of the 200 armoured fighting vehicles captured from the Syrian Army that the IDF were able to salvage. The Israelis claimed that the Syrians lost 200 T-62s, 125 T-54 and T-55s, nine T-72s and about 140 APCs.



The Israelis were very pleased with the performance of the Merkava in Lebanon. Its ability to engage at range gave them a first-strike capability so vital in a tank battle. Likewise the tank's new kinetic-energy rounds ensured that a first strike was also a first kill.

## Chapter Eleven

# The Forever War – Gaza

In the years following Operation Peace for Galilee, to better protect its infantry the IDF developed a series of armoured personnel carriers with increasingly specialised roles. These included the Nagmash'ot, Nagmachon, Nakpadon and the Puma, based on the Centurion, as well as the Achzarit, derived from the T-54/T-55, and the Namer using the Merkava chassis.

Finding peace with Israel's Arab neighbours remained elusive as ever. The Israelis fought a brief war with Hezbollah in southern Lebanon in mid-2006, which saw Israeli tanks and armoured personnel carriers push once again across the border. This was the first time that the Merkava Mk IV, which was just entering service, saw combat, though only in limited numbers. The Israelis found themselves fighting an asymmetrical war – although the lightly equipped Hezbollah lacked tanks, its anti-tank arsenal included the RPG-29 Vampir, AT-5 Konkurs, AT-13 Metis-M and the AT-14 Kornet missiles, all of which could be deadly to armoured vehicles.

As a result the Merkava tank crews suffered quite heavily. Five Merkava IVs had their armour penetrated by such missiles, killing ten crew. Another Merkava IV drove over an improvised explosive device (IED) and the blast killed a crewman. About fifty Merkavas, mainly the earlier Mk IIs and IIIIs, were damaged, with eight remarkably remaining operational on the battlefield. Two Mk IVs were writes-offs, having been hit by an AT-14 and an IED, while the rest were repaired and returned to service.

Yet another major IDF military operation occurred in late 2008. While Hezbollah continued to fire rockets into northern Israel from Lebanon, Palestinian Hamas was also escalating its attacks from the Gaza Strip. For many years Israel was able to keep a firm grip on the border between Gaza and Egypt via the 'Philadelphi Route' established under the 1979 Israeli–Egyptian peace accord. Israel retained this 14km-long, 100m-wide corridor under the 1995 Oslo Accords to prevent the movement of weapons into Gaza. The solution for the Palestinians was to tunnel under it.

Militants blew up five Israeli soldiers who were about to destroy a smuggling tunnel after firing a RPG at their armoured personnel carrier on 12 May 2004. In response Israel launched Operation Rainbow, blowing up three tunnels, destroying or damaging fifty buildings and killing forty 'terrorists'. The following year control of the Philadelphi corridor was handed over to the Palestinian National Authority as part of Israel's unilateral disengagement plan for Gaza.

According to the Israeli Ministry of Foreign Affairs, in the six months between the Hamas takeover in June 2007 and them breaching the border fence on 23 January 2008, almost 100 tons of explosives were smuggled into Gaza. This was over three times the amount smuggled in the period between the Israeli withdrawal from Gaza in 2005 and the

Hamas takeover two years later. The breach was undoubtedly used to get in more weaponry. Indeed, between the summer of 2005 and the end of 2008 Israeli intelligence sources estimate that 250 of explosives, 4,000 rocket-propelled grenades and 1,800 rockets came across the border. All this was turned on Israel. Washington was so annoyed at Cairo's inaction on this issue that in December 2007 Congress withheld \$100 million of aid until Egypt effectively countered the smuggling of arms into Gaza.

Gaza's borders to the north and east with Israel were sealed in 2007 after Hamas took power, following a bloody battle with its secular rivals Fatah, politically splitting it from the West Bank. The Gaza Strip is home to 1.5 million Palestinians, over 50 per cent of whom are reliant on UN aid. While Israel enforced its blockade, the tunnels under Gaza's southern border were used to smuggle in everything imaginable from northern Egypt.

In 2009 Israeli tanks once again rolled into an Arab neighbour. Fed up with constant rocket attacks by Hamas militants operating from the Gaza Strip, on 27 December 2008 the Israelis launched Operation Cast Lead. It was heralded by intensive air strikes on 100 targets conducted by a combination of fighter aircraft and attack helicopters. The Israeli Navy also supported these attacks by bombarding coastal targets. The aim was to neutralise the Izzidin al-Qassam brigades which formed the military wing of Hamas.

IDF armour and infantry rolled into Gaza on the evening of 3 January 2009 following a massive artillery bombardment. In total Israeli artillery fired around 7,000 rounds during the short conflict. Key amongst these attacking units was the 401st Armoured Brigade, deploying the Merkava Mk IV to block communications from Khan Yunis and Rafah into Gaza City itself. This cut Hamas' supply lines from the south.

The Merkavas were confronted by Palestinian militants equipped with domestically produced anti-armour RPGs such as the al-Battar and Banna 1 and Banna 2. Hamas and Palestinian Islamic Jihad also had plenty of IEDs: these varied in size from antipersonnel mines to devices capable of taking on armoured vehicles.

In anticipation of the inevitable booby-traps the advance was spearheaded by D9 armoured bulldozers of the Israeli Combat Engineering Corps. They were used to clear obstructions and destroy the militants' tunnel networks. The following day Israeli troops entered Beit Lahiya and Beit Hanoun in northern Gaza.

The Merkava Mk IV brigade succeeded in crossing the Gaza Strip in five hours without loss. Israeli tanks secured great swathes of the Gaza Strip, resulting in thousands of Palestinians fleeing into Gaza City. The IDF moved into the city on 5 January 2009 and running gun battles broke out on the streets. The following day Israeli paratroops were involved in heavy fighting in the northern districts. The Israeli Air Force conducted forty air strikes overnight on 7 January in an effort to silence pockets of resistance by Hamas fighters.

Israeli tanks then concentrated their efforts against a Hamas HQ on 13 January. Just before dawn, while it was still dark, Israeli infantry, supported by the tanks and artillery, moved into Tel al-Hawa in the north-east, where militants were holed up in some high-rise buildings. Israeli patrol boats also shelled Hamas positions along the coast. It was the

Israeli Givati Brigade that got the furthest into Gaza City, with its reconnaissance battalion occupying the Tel al-Hawa district. The Israelis announced a unilateral ceasefire on 17 January 2009, and the following day Hamas and Palestinian Islamic Jihad demanded that the IDF withdraw within a week. For Israel it was pyrrhic victory.

In the aftermath of Operation Cast Lead Israel's tanks were now clearly faced by a new generation of far more sophisticated anti-tank weapons. The following year the Israelis began to equip their Merkava Mk IVs with an active protection system called Trophy, which was designed to enhance the tanks' survival rate against strikes by advanced anti-tank missiles using tandem charged HEAT warheads.

There can be no denying that the Israeli armoured corps has come a long way since its humble beginnings in 1948. Since then it has successfully helped to defend Israel during every single major conflict with its neighbours and scored some quite remarkable victories in the face of overwhelming odds. As a result the IDF have one of the largest and best-equipped armoured forces in the world.





An IDF Zelda and other armoured fighting vehicles, including what appears to be an Achzarit in the second shot, withdrawing from Gaza in the summer of 2005 as part of Operation Last Dawn. This was the final stage of Israel's historic disengagement from Gaza. Despite the triumph of the IDF's armoured corps in 1948, 1956, 1967 and 1982, Israel never found peace because of the insoluble Palestinian problem.





The Achzarit entered into production in 1988 and is based on a heavily modified Soviet T-54/T-55 tank chassis. As well as the crew it can carry seven infantrymen. From its shape it was clearly designed to operate alongside the Merkava.



The Israeli Nakpadon is a heavy armoured personnel carrier based on the venerable Centurion-derived Nagmasho't. This family of vehicles has seen service in Lebanon and Gaza.



A Palestinian rocket launched by Hamas from the Gaza Strip heads towards an Israeli target. In 2008 Hamas fired over 3,000 rockets and mortar bombs into southern Israel – this sparked the return of the IDF's armour.



An Israeli multiple-rocket launch system firing back at its Lebanese or Palestinian tormentors.



An old Soviet-era BRDM-2 armoured scout car used in an attempt to ram the Kerem Shalom crossing in southern Gaza in April 2008.



The Merkava Mk IV first saw combat in 2006 when the IDF rolled into southern Lebanon again in response to Hezbollah rocket attacks on northern Israel. Hezbollah was well equipped with anti-tank weapons and a total of fifty Merkavas were hit, including five Merkava Mk IVs. This particular vehicle belongs to the 188th Armoured Brigade.





IDF M109 155mm howitzers conducting counter-battery fire – rocket attacks from Lebanon and Gaza became an increasing menace to Israel. During Operation Cast Lead Israeli artillery fired 7,000 rounds – which equated to just 5 per cent of what was expended during the previous Lebanon War.





Merkava Mk IVs of the 401st Armoured Brigade – during Operation Cast Lead, which commenced in early January 2009, this unit played a key role in cutting Rafah and Khan Yunis off from Gaza City. They were confronted by Palestinian militants equipped with domestically produced anti-armour RPGs such as the al-Battar and Banna 1 and Banna 2 rocket launchers.



D9 armoured bulldozers of the Israeli Combat Engineering Corps cleared the way into the Gaza Strip for the tanks. They also used a remote controlled version called 'Black Thunder'.



The highly distinctive Merkava remains the epitome of all the lessons learned from the armoured warfare conducted during the various Arab–Israeli conflicts.